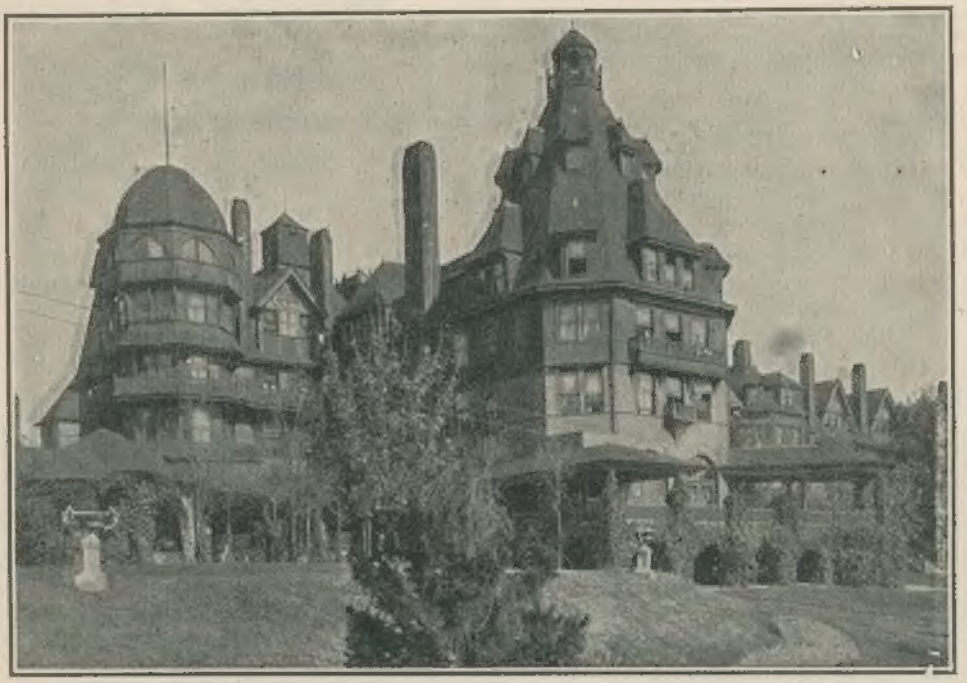
THE LILY-PAD ROWING ASSOCIATION HOLDS ITS ANNUAL CARNIVAL.



THE BATTERY PARK HOTEL

At Asheville "in the land of the sky"

THE BATTERY PARK HOTEL IS SO CLOSELY ASSOCIATED WITH ASHEVILLE THAT THE NAMES ARE ALMOST SYNONYMOUS. THE HOTEL IS SITUATED IN A BEAUTIFUL PRIVATE PARK AT AN ELEVATION OF 200 FEET, OVERLOOKING THE TOWN, AND IT PRESENTS A MOST PICTURESQUE APPEARANCE FOR MILES AROUND. DIRECTLY WITHIN VIEW FROM THE BROAD VERANDAHS OF THE HOTEL STANDS OLD MT. PISGAH, 5757 FEET HIGH, WITH ITS SENTINELS ON EITHER SIDE, WHILE DOWN BELOW ARE THE PRETTY STREETS AND HOMES OF ASHEVILLE.

THE BATTERY PARK HOTEL IS THE LARGEST AND BEST APPOINTED HOTEL IN THE TOWN, AND IS EQUIPPED WITH EVERY MODERN COMFORT AND CONVENIENCE.

NO CONSUMPTIVES TAKEN

THE CITY OF ASHEVILLE IS BEAUTIFULLY SITUATED AMIDST THE SOUTHERN APPALACHIAN MOUNTAINS ON A BROAD PLATEAU, 2300 FEET ABOVE TIDE-WATER. THE CLIMATE OF THE ASHEVILLE PLATEAU RANKS ONLY SECOND TO DENVER IN POINT OF DRYNESS. ITS FAVORABLE GEOGRAPHICAL CONDITIONS INDUCE ALMOST DAILY OUT OF DOOR EXERCISE IN THE WAY OF WALKING, RIDING, DRIVING, GOLFING, AUTOMOBILING, AND HUNTING. THE MAIN STREETS OF THE CITY ARE PAVED WITH VITRIFIED BRICK WHILE FINE MACADAMIZED ROADS LEAD TO MOUNTAIN DRIVES IN EVERY DIRECTION. THE ENTIRE REGION IS COVERED WITH A LUXURIOUS GROWTH OF PINE AND BALSAM, THE MOUNTAINS BEING WOODED TO THE VERY SUMMIT. WHEN ONE ADDS TO THIS SCENIC LOVELINESS AN AVERAGE TEMPERATURE OF 54.18 DEGREES IT IS EASILY UNDERSTOOD WHY THIS MODERN AND PROGRESSIVE CITY SHOULD BE A MECCA FOR PLEASURE AND HEALTH SEEKERS.

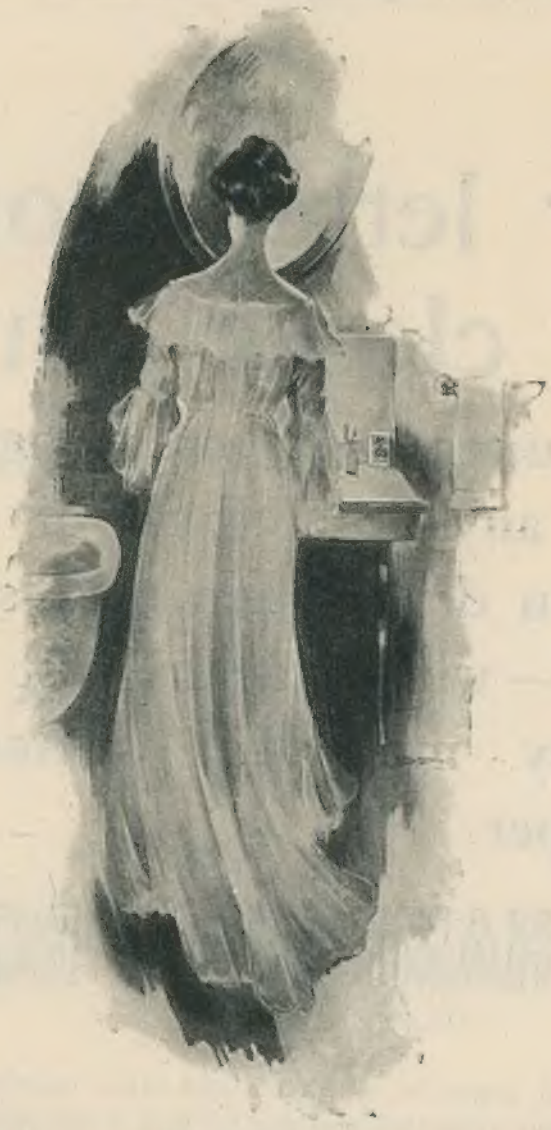
THE RAILROAD FACILITIES CONNECTING ASHEVILLE WITH THE EAST AND WEST ARE EXCEPTIONALLY GOOD. THROUGH PULLMAN SLEEPERS ARE RUN FROM BOSTON, CHICAGO, NEW YORK, PHILADELPHIA AND WASHINGTON. PARTIES LEAVING NEW YORK LATE IN THE AFTERNOON REACH THE BATTERY PARK IN TIME FOR LUNCHEON NEXT DAY. CONSULT ANY AGENT OF THE SOUTHERN, PENNSYLVANIA, BIG FOUR OR QUEEN AND CRESCENT ROUTE.

WRITE US FOR BOOKLET, CONTAINING VIEWS OF THE HOTEL AND ASHEVILLE DISTRICT.

THE BATTERY PARK HOTEL

ASHEVILLE, NORTH CAROLINA

D. C. WADDELL, JR., PROPRIETOR. F. R. DARBY, MANAGER.



WE don't stop to consider that the cleansing property of water depends upon its softness—hard water only half does its work. The marvelous virtue of BORAX is due to a very simple law—it SOFTENS water. If you will wash your face every night in warm Borax water, Nature will soon respond—your skin will become softer, clearer and pinker.

BORAX differs in purity and quality, like other things. The purest and best Borax is

20-MULE-TEAM

BRAND. For sale at all drug and grocery stores in ¼, ½ and 1-lb. packages.

PACIFIC COAST BORAX CO.

New York Chicago San Francisco

XMAS GIFTS FREE TO BOYS & GIRLS

MANY OTHER GIFTS FREE TO BOYS

For selling only 30 fine handkerchiefs at 10 cents each.

BOYS' FOOTBALL OUTFIT

PANTS, JACKET, BELT, HELMET

The pants are made college style, of regulation cloth, full padded at hip and knee; lace front sleeveless jacket. Belt and complete Head Harness, consisting of Leather Helmet with Earguards.

RUGBY FOOTBALL

Boys' celebrated Spalding regulation Rugby Football, solid leather case, guaranteed rubber bladder, packed in sealed box, higher priced and superior to other makes.

How to Get These Premiums Free

SEND NO MONEY—We trust you.—Just write us for 32 of our extra high-grade, soft-finished, **Hemstitched Handkerchiefs** which **we deliver free,** without advance payment or deposit; sell them for us at only 10 cents each and we will ship you **free of all expense** any of the premiums shown here or your choice from our list of Magic Lanterns, Books, Clocks, Food Choppers, Rifles, Skates, Hand Bags, Printing Outfit, Bread Makers, etc., which we will send you. We take back what is unsold and **reward you just the same.** All premiums exactly as represented and delivered promptly.

WOOD-WOOD CO., No. 2 BROADWAY Dept. 25, NEW YORK

18-inch DRESSED BISQUE DOLL

Fur Set, Carriage, Moving Baby

GREATEST DOLL OUTFIT ever imported. **Doll 18 in. high,** dressed with Parisian hat, cashmere dresses, silk clothing, trimmed with lace, laces, stockings, etc. **Baby Carriage,** beautifully trimmed. **Baby Doll** can stick, sucker and coo. **Baby Fur Set.** All true and new premiums. This charming set of perfect beauties will delight every girl and you can get it for a little work after school hours. Given away for selling 30 of our extra fine high-grade hemstitched handkerchiefs at 10 cents each.

GENUINE BALTIC SEAL FUR BOA

We Pay All Charges

We Ship Gifts Promptly

BALTIC SEAL FUR BOAS

Women's and Girls' sizes have 6 bushy fox tails, 54 inches long, made very wide and full around the neck, warm and dressy. They are a very popular style and will give years of satisfactory wear; they retail in New York stores at $5.00 each. Given for selling only 32 fine handkerchiefs at 10c. each.

BOYS' AND GIRLS' SCHOOL UMBRELLAS

These umbrellas are built for service as well as handsome appearance. They have extra strong steel ribs with ball ends and a strong steel rod and handle for boys and girls. They are covered with best imported water proofed silk gloria.

CHILDREN'S SCHOOL CASE

Ready for Shopping and Traveling

13 Inches Long; 5 Inches Deep

No. 60—Patent leather covered, two leather fastening straps, leather covered metal handle, heavy leather corners fastened with brass rivets, linen cloth lined, strong frame, water proof. A handsome case made for service.

No. 61—Covered with alligator grain, lock and key, ornamental brass corners, linen cloth lined, water proof, strong handle.

A WONDERFUL TELESCOPE

With this scientific instrument you can see objects as miles away as plainly as if they were a few hundred feet off. The telescope is 36 feet long when ready for use. Has five lenses, is brass-bound and morocco-covered; just the thing to delight a wide-awake boy. Given for selling only 30 fine handkerchiefs at 10 cents each.

GIRLS' and BOYS' ALL WOOL SWEATERS

Best quality, all wool stock, good weight, heavy double roll collar. Striped on solid color ground, black with red stripe, navy with red, cardinal with white. Made especially for us and guaranteed to fit snugly and give perfect satisfaction. State your age.

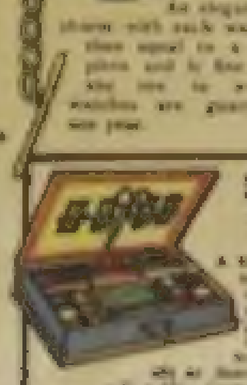
A SET OF FOUR SPALDING'S HIGH-GRADE BOXING GLOVES

Hand-sewed with special thread, soft padded and elastic wrist bands. The very best made.

Given for selling only 30 of our fine quality hemstitched handkerchiefs at 10 cents each

BOYS' WATCH ALSO Chain & Charm

This American dust and damp proof movement, 6-ounce nickel case and chain with each watch. Keeps time equal to a $20.00 gold piece and is fine enough for any one to wear. These watches are guaranteed for one year.



SEWING CABINET

A beautifully ornamented box as leather as again, nickel plate with sewing implements and thimble. Comes in assorted colors, as shown, and a quality of silk in assorted colors, a piece of embroidered cambric and a piece of embroidered cotton, a yard of embroidered cotton, assorted colors, a piece of assorted lace, another piece beautiful ribbon, flosses in colors, needle gage, hinged cover, compact when the silk and cloth.

A GENUINE DIAMOND RING GIRLS'

Solitaire or Tiffany style. The diamond ring we send is just like cut, and an exclusive feature is a GENUINE DIAMOND in latest setting ring with ornamental "mark." The diamond stands out like and clear and sparkles from every side. If you select this diamond ring send a strip of paper that just fits around your finger.

LOOKS LIKE A $25. CHATELAINE WATCH

The wearer of this handsome piece of jewelry will be the envy of all her friends and receive credit for owning a fine Gold Watch. This watch locket and pin, 14k. gold plate with the back case and a beauty. Do not confuse it with the cheap jewelry now flooding the market. Guaranteed one year.

SOLID LEATHER PEAR SHAPE PUNCHING BAG AND BLADDER

Best pliable leather, hand sewed with double thread, lined and reinforced with leather, each has fully tested rubber bladder, also fixtures for hanging to platform, all in sealed box and guaranteed. Given for selling only 32 fine handkerchiefs at 10 cents each.

OUR SPECIAL OFFER TO ALL BOYS AND GIRLS

Christmas will soon be here so hurry up and write for the handkerchiefs at once so as to be sure of having your elegant premium before the holidays.

SPECIAL OFFER: If you will get two or three of your friends to order and send their orders with your own, we will mail you a splendid special gift by return mail.

WOOD-WOOD CO.
Dept. 25
No. 2 Broadway, N. Y.

CALIFORNIA

THE LAND OF SUMMER DAYS THROUGH WINTER MONTHS

YOU CAN PLAY OUT OF DOORS EVERY DAY IN THE YEAR AT

THE HOTEL DEL CORONADO, CORONADO BEACH. THE WORLD'S MOST EQUABLE CLIMATE. A NEW PLEASURE FOR EVERY DAY.

THE NEW GLENWOOD, RIVERSIDE. CALIFORNIA'S MISSION HOTEL. OLD-TIME ART AND MODERN COMFORT. ORANGE BLOSSOMS AND GOLDEN FRUIT AND FAMOUS MAGNOLIA AVENUE.

THE CASA LOMA, REDLANDS. MID ORANGE GROVES AND SNOW-CAPPED MOUNTAINS. MODEL HOTEL; MODEL TOWN; MODEL CLIMATE; DRY, WARM AIR.

THE HOTEL GREEN, PASADENA. SURROUNDED BY FLOWERS, COMBINING PERFECTION IN ART AND NATURE. A SUN-KISSED JEWEL IN PASADENA'S CROWN.

THE RAYMOND, PASADENA. ON A FOOTHILL SUMMIT, FACING MOUNTAIN AND VALLEY. ON EVERY SIDE AN INSPIRING VIEW. WHERE EVERY SENSE IS GRATIFIED.

THE MARYLAND, PASADENA. PASADENA'S HOME HOTEL. OPEN ALL THE YEAR. UNDER THE BEAUTIFUL PERGOLA, ITALY AND CALIFORNIA JOIN HANDS.

THE ANGELUS, LOS ANGELES. CENTRAL, CONVENIENT, LUXURIOUS. LATEST EASTERN IDEAS JOINED WITH WESTERN HOSPITALITY.

THE LANKERSHIM, LOS ANGELES. LOS ANGELES' NEWEST HOTEL IN HEART OF THE CITY. EVERY ADVANTAGE OF EXPERIENCE. WELCOME FOR ALL.

THE POTTER, SANTA BARBARA. THE SCENIC SEASIDE HOTEL OF THE PACIFIC. FACING THE FAMOUS SANTA BARBARA CHANNEL. FOR ALL WHO WANT THE BEST.

THE ARLINGTON, SANTA BARBARA. WHERE TRADITION AND REALITY UNITE IN PERFECT SATISFACTION. NEAR BEAUTIFUL SANTA BARBARA MISSION.

THE PASO ROBLES HOT SPRINGS, PASO ROBLES. WHERE SUNSHINE AND HOT SPRINGS GIVE HEALTH AND HAPPINESS. THE NEWEST, FINEST AND MOST COMPLETELY EQUIPPED BATH HOUSE ON THE CONTINENT.

THE HOTEL DEL MONTE, THE BEAUTIFUL DEL MONTE. BY THE SEA, NEAR OLD MONTEREY. GOLF AND ALL OUTDOOR PLEASURES EVERY DAY IN THE YEAR. A WEALTH OF HISTORIC LANDMARKS.

THE SEA BEACH HOTEL, SANTA CRUZ. ON A BLUFF BY THE OCEAN SPRAY. WHERE FISHING IS GOOD. GENIAL CLIMATE. CLOSE TO BIG TREES.

THE HOTEL VENDOME, SAN JOSE. EMBOWERED IN BLOSSOMS. IN BEAUTIFUL SANTA CLARA VALLEY. STAGE LEAVES HERE FOR LICK OBSERVATORY.

THE ST. JAMES HOTEL, SAN JOSE. SOLID COMFORT FOR ALL WHO TRAVEL. MID ORCHARD AND CITY. ON WAY TO GREAT LICK OBSERVATORY.

THE CALIFORNIA HOTEL, SAN FRANCISCO. THE HOMELIKE HOTEL OF A CITY OF TRAVELERS. A CHEF FOR EVERY PALATE.

THE HOTEL ST. FRANCIS, SAN FRANCISCO. FACES UNION SQUARE PARK. THE HOTEL ANSWERS EVERY WANT, ITS INFORMATION BUREAU EVERY QUESTION.

THE PALACE HOTEL, SAN FRANCISCO. A RESTING PLACE FOR THE WORLD'S TOURISTS. ITS GREAT COURTYARD, BEAUTIFUL PALM GARDEN AND SWEET-VOICED ORGAN ARE KNOWN IN THE WORLD'S CAPITOLS.

WRITE TO THE MANAGER OF ANY OF THESE SUPERB HOTELS FOR BOOKLETS AND FULL INFORMATION REGARDING THIS CHAIN OF CALIFORNIA RESORTS.

CHALFONTE

ATLANTIC CITY, N. J.

This modern Fireproof House accommodating 600 was opened July 2nd, 1904, for its 37th consecutive season after the expenditure of over $600,000.00 for improvements.

The pavilion with three decks open on all sides affords a splendid view of the Boardwalk and Surf, and the Roof Promenade and Sun Space on the Tenth Floor command the Atlantic Ocean for 20 miles.

CHALFONTE is remarkable for the elegance of its appointments, the excellence of its table, and the comforts which it affords to those seeking rest or recreation at the Seashore.

THE LEEDS COMPANY
ATLANTIC CITY, N. J.

Chalfonte is Always Open

Write for Folder and Rates

Designs copyright, 1899-1900-1-2-3-4-5 by The U S Playing Card Co.

Playing Cards as Gifts

People who play cards would derive genuine pleasure from one of our fancy holiday boxes filled with

Congress Playing Cards

These attractive boxes contain assortments of our most popular designs—you may select the backs if you wish. Removable card trays make boxes useful for other purposes. Any one of these boxes makes a "Merry Christmas," combining the holiday spirit with an article of use and enjoyment. Just the thing for card party prizes. Prices: box containing 2 packs, $1.25; 3 packs, $1.75; 6 packs, $3.50. Sent prepaid if your dealer does not supply you.

Write for samples (single cards) and you will understand *why* Congress cards are so popular for card parties, at well-appointed clubs and for home use. Samples are free.

Congress backs are exquisite in coloring. The faces are clearly printed; the corner indexes large. The cards are perfect in manufacture; edged with pure burnished gold leaf.

But *play* with them—there's the *great* fascination of Congress Cards. Their ivory smoothness, their crispness and *snap* gets into the players' fingers—doubles the zest of the game.

Over 100 designs to choose from—all in gold and rich colors—including

Pictorial Series—Reproductions of best pictures of American and European artists.
Initial Series—The newest and most exclusive. All letters of the alphabet.
Club Series—For Whist, Poker, Euchre, etc. Cards of quality in set pattern designs.

Send 50 cents per pack for backs desired. Illustrations and Sample Card free.

DUPLICATE WHIST—best of card games, in which skill—not luck—wins. Played with Paine's Duplicate Whist Trays—12-Tray set $5.00; extra fine set $10.00. 3 months' course of Whist Lessons free with each set.

Card Games and How to Play Them, 160 pages; Entertaining with Cards, 64 pages; Whist and Duplicate Whist, 104 pages, each, paper, 15 cents; cloth, 25 cents. Vest Pocket Editions—Cinch or High Five, Hearts, Skat, Pinochle, Poker, Bridge, Euchre, Fan Tan, Five Hundred, each, paper, 5 cents; cloth, 10 cents.

Address Dept. 6. **The U. S. Playing Card Co., Cincinnati, U. S. A.**

Makers also of "Bicycle Playing Cards." Popular price—conventional designs, for everyday use. Fine dealing and wearing qualities. Sold by dealers, or send 25 cents a pack for designs wanted. Illustrations sent free.

We send above goods, prepaid, on receipt of prices named in this advertisement if your dealer does not supply them

The Velvet Grip

EVERY PAIR WARRANTED

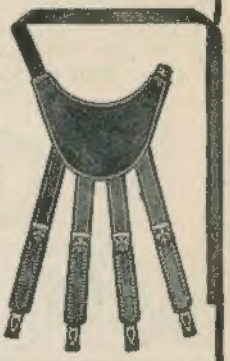
CUSHION BUTTON

HOSE SUPPORTER

FRONT PAD BELT

Giving the Popular Straight Front Effect

CORRECT, HYGIENIC, COMFORTABLE



OF YOUR DEALER

Or Sample Mailed (Cott., 25c. Mer., 50c. Silk, 75c.) on receipt of price.

GEORGE FROST CO., Makers
Boston, Mass.

Licensed under Pat., Dec. 5, 1899.

Vapo-Cresolene

(Established 1879.)

"Cures While You Sleep."

Whooping-Cough, Croup, Bronchitis, Coughs, Diphtheria, Catarrh,

Confidence can be placed in a remedy which for a quarter of a century has earned unqualified praise. Ask your physician about it.

Cresolene is a Boon to Asthmatics.

ALL DRUGGISTS

Send Postal for Descriptive Booklet.

Cresolene Antiseptic Throat Tablets for the irritated throat, at your druggist or from us. 10c. in stamps.

The Vapo-Cresolene Co.
180 Fulton St., N. Y.
288 St. James St., Montreal, Canada.

VOL. 49
NUMBER 1261
DECEMBER 16
1905

Judge

PRICE
25
CENTS

CHRISTMAS 1905

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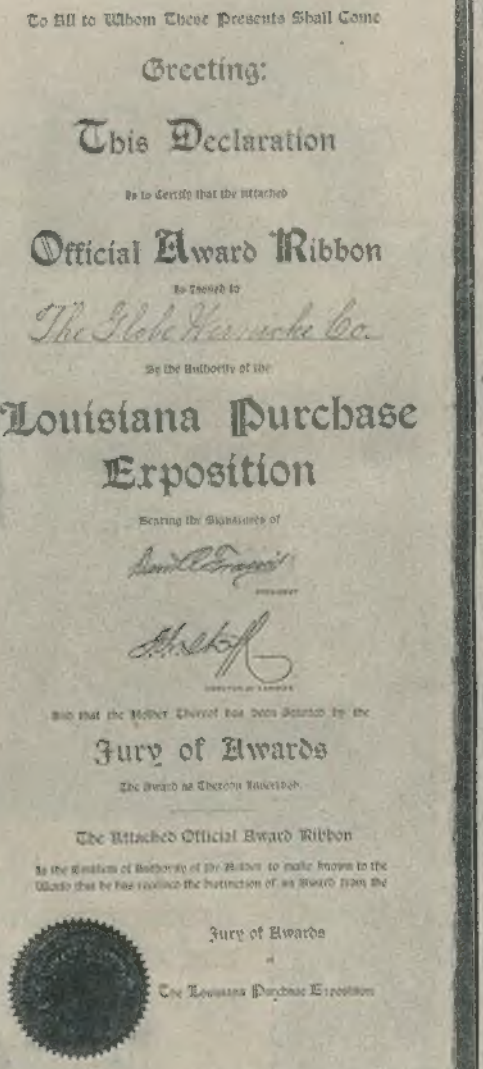
225 FOURTH AVE. NEW YORK.

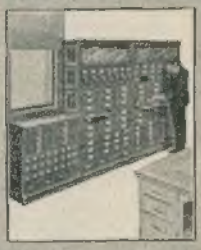


The Globe-Wernicke Co.

DOUBLY HONORED

AWARDED BOTH GRAND PRIZE AND GOLD MEDAL ON

Elastic Bookcases



Office Filing Cabinets

Card Index Equipment

Office Specialties.

CHICAGO 224-228 WABASH.
NEW YORK 380-382 BROADWAY.
BOSTON 91-93 FEDERAL.
LONDON 7 BUN HILL ROW.
CANADIAN FACTORY, STRATFORD, ONT.,

The Globe-Wernicke Co.
CINCINNATI

ADDRESS DEPARTMENT K FOR Catalog and List of Agents

Cat. 104 Bookcases
Cat. 804 Filing Cabinets
Cat. 904 Card Index Supplies

The Sheldon School

A System of Education

In Practical Philosophy, Psychology, Human Nature and Logic as Applied to Commerce and the Professions.

Permanent and Increasing SUCCESS

is not a matter of luck or chance, but is governed by unchangeable laws—natural laws, mental, moral, spiritual and physical.

¶ Find out these laws, study them know them, act in harmony with them and the results will be what?

¶ *First*, increasing wisdom—mastery of all difficulties.

¶ *Second*, power of persuasion—ability to sell at a profit—ability to sell to men of affairs as well as men in the humbler places in life.

¶ *Third*, an ever enlarging capacity to earn more money. Just as well earn hundreds where you have earned tens.

¶ *Fourth*, a magnetic personality—a vital force that yields returns like money invested in gilt-edge securities.

¶ *The Sheldon System* points the way, so that any one may acquire what will be most useful to him in his particular calling.

¶ Every one in contact with the business world needs a deeper insight into the things that make possible success of the largest kind.

¶ Send three 2c stamps for new, illustrated 48-page Prospectus, which will explain to you who we are and how we may serve you.

¶ *Start the New Year right.*

The Sheldon School, 1196 McClurg Bldg. Chicago

What Part of Your Business Does Not Pay?

DO the profits of one department conceal the losses of another?

WE bring to light defects that you may not locate because we look at your proposition from another standpoint.

THE wide experience of our experts concentrated on your business will show the exact conditions. We install cost systems that meet all special requirements.

THE INTERNATIONAL AUDIT COMPANY

411 Merchants Loan and Trust Bldg.
CHICAGO

Our Booklet, "Audits as a Business Aid," on request.
We solicit correspondence.

I have tried to make my advertisements plain; to make them state facts; to convey to the reader's mind, in the fewest possible words, just what I was trying to accomplish—which is this: I want you, if you smoke, to test my cigars entirely at *my risk*.

Some men seem to think there is a catch somewhere, a "nigger in the wood pile," if you please. There is none. How could there be? You have the cigars and the money. You are at liberty to send me whichever you see fit. But to make the matter stronger, I have attached a coupon to this advertisement which, if you will cut out on the dotted lines, you will readily see is a contract that I cannot well dodge.

On the flap label of every box of Shivers' Panetela Cigars appears this

GUARANTEE

We guarantee that Shivers' Panetela Cigars are clean, clear, selected long Havana filler, and selected genuine Sumatra wrapper.

Herbert D. Shivers, Inc.

Could any man afford to put that guarantee on his merchandise, over his signature, if it was a lie? Would you?

I do not know of a cigar the equal of this that retails for less than ten cents. I manufacture every cigar that I sell, consequently *know* of what they are made and how they are made, something that the mere dealer can not possibly know.

My only possibility of continued success is *re-orders*, and the best evidence that I can here give is that I am receiving them in constantly increasing numbers.

My factory is close to the business centre of one of the largest cities in the United States. It is open to my customers, who are cordially invited to call and see the cigars made.

SHIVERS' PANETELA
Exact Size and Shape

CONTRACT — Cut on this line

Herbert D. Shivers,
906 Filbert St., Philadelphia, Pa.

Dear Sir:

You may ship me, carriage prepaid, one hundred of your Panetela cigars under the following conditions: I am to have the privilege of smoking ten of the cigars, and if, for any reason, I am not pleased with them, I am at liberty to return the remaining ninety by express, at your expense, and there is to be no charge for the cigars consumed. If I elect to keep the cigars I agree to remit the price for them, $5.00, within ten days

Name .....

Street .....

City .....

State

I enclose my business card as an evidence of good faith on my part.

Bkl. 1-0-05 — Cut on this line

Bkl. 1-0-05 — Write me, if you smoke.

HERBERT D. SHIVERS

906 Filbert Street, Philadelphia, Pa.

"CLOISTERS" CHICAGO UNIVERSITY, LIGHTED WITH HOLOPHANE GLOBES

"*The* CLOISTER *and the* HEARTH"

share equally the delights of good illumination by using

HOLOPHANE
GLOBES AND REFLECTORS

¶ Good illumination is that which satisfies the eye; which is neither glaring nor dim; which neither dazzles nor tires. *Holophane Globes* and *Reflectors*, used with any kind of light, produce good illumination, and save light at the same time. They cost no more than the ordinary "fancy" globe. Over two hundred styles. Ask your dealer. Get our booklets, too.

Booklet (*a*) "Light vs. Illumination"; (*b*) "Lighting of Private Homes", (*c*) Lighting of Offices, Stores and Factories"; (*d*) "Lighting of Hotels and Clubs"; (*e*) "Lighting of Schools, Churches and Libraries"; (*f*) "Lighting of Theatres and Public Halls"; (*g*) "Lighting of Railway Coaches and Steamers."

Holophane Globes are Sold by Leading Dealers in Gas and Electric Light Fixtures

HOLOPHANE GLASS COMPANY

609, 211 JACKSON BOULEVARD, CHICAGO, ILL.

15 EAST 32D STREET, NEW YORK CITY, N. Y.

BOSTON REPRESENTATIVES
Hale & Codman, 220 Devonshire St.

PHILADA. REPRESENTATIVES
Baxter Lighting Co., 49 N. 13th St.

"SUMMER COTTAGE, HOLOPHANE GLOBE ON OIL LAMP"

CREAM of WHEAT

"That Settles It"
Cream of Wheat
settles the question delightfully. The taste says so, the appetite is perfectly satisfied, and the sound body proves it. Serve hot or cold — Breakfast, Dinner, Supper.

Servant Question
—you'll settle it so far as the WASHING and CLEANING are concerned by supplying yours with PYLE'S

Pearline

The work will be done WELL-EASILY-SAFELY and

You'll Have a Grateful Servant

Either Way You Look At It

From the standpoint of either *safety or accuracy*, no better weapon for defence or attack can be had than the Iver Johnson Revolver.

No safety mechanism could be more simple and perfect—a device that *means safety*, without any "ifs" or "buts" about it. The

IVER JOHNSON
REVOLVERS

need not be handled carefully; with chambers fully loaded, drop it on the floor, strike it with a hammer—throw it around anyway—it can't possibly go off unless you pull the trigger. We wouldn't advise you to try this with any other revolver.

For sale by all leading Hardware and Sporting Goods dealers.
Hammer, $5.00. Hammerless, $6.00.

Write for our bright little booklet, "Shots" and complete catalogue, *free*

Iver Johnson's Arms and Cycle Works
FITCHBURG, MASS

Please mention THE BOOKLOVERS MAGAZINE *when you write to advertisers*

DIRECTORY OF HOTELS AND RESORTS

OPEN THROUGHOUT

THE YEAR AND IN SEASON

ABSOLUTELY FIREPROOF

Delaware Ave. & Johnson Park

HOTEL TOURAINE

BUFFALO, N. Y.

250 Rooms and Baths

Niagara Falls 40 Minutes from Hotel

On America's Most Beautiful Avenue

5 Minutes' Walk to Business Centre

RATE $1.50 PER DAY AND UPWARD

H. C. GRISWOLD, Prop.

The Lafayette Hotel,

BUFFALO, N. Y.

EUROPEAN PLAN ABSOLUTELY FIREPROOF

This Modern Hotel is entirely new.

It is located at the corner of Washington and Clinton Streets, facing beautiful Lafayette Square, only one short block from Main Street and the shopping district, and in close proximity to the principal theatres. Trolley cars from and to the various railroad and steamship lines pass the door.

The LAFAYETTE HOTEL is superbly furnished. It will cater to the Commercial and Tourist trade and the General Public. Contains three hundred rooms, nearly all supplied with tub or shower baths.

Splendidly appointed cafes, palm room and buffet

Rates for Rooms—$1.50 per day and upwards.

Spaulding and Oaks, Managers.

Character
Quality
Repose

Hotel Algonquin
NEW YORK

59-61-63 West 44th Street
Bet. Fifth *and* Sixth Aves.

In same block with Harvard, Yale, and N. Y. Yacht Clubs, at the social centre of the city. Convenient to all transit lines. Heart of Amusement and Shopping districts. A modern, high-class, fire-proof Hotel, offering every requisite for the comfort of transient and permanent guests at moderate prices.

A quiet, refined, and convenient stopping-place for ladies traveling alone

	A Day
Bedroom and Bath	$2 to 3
Sitting Room, Bedroom and Bath	4 to 6
Sitting Room, 2 Bedrooms, 2 Baths	6 to 9
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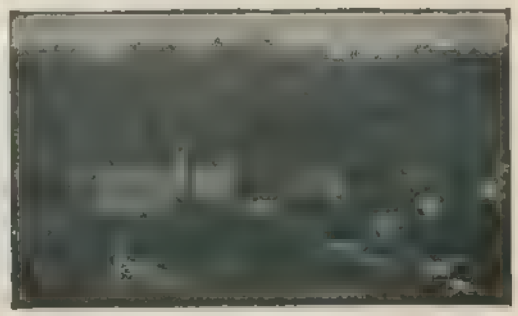

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Minneapolis and St. Paul
West Baden and Louisville
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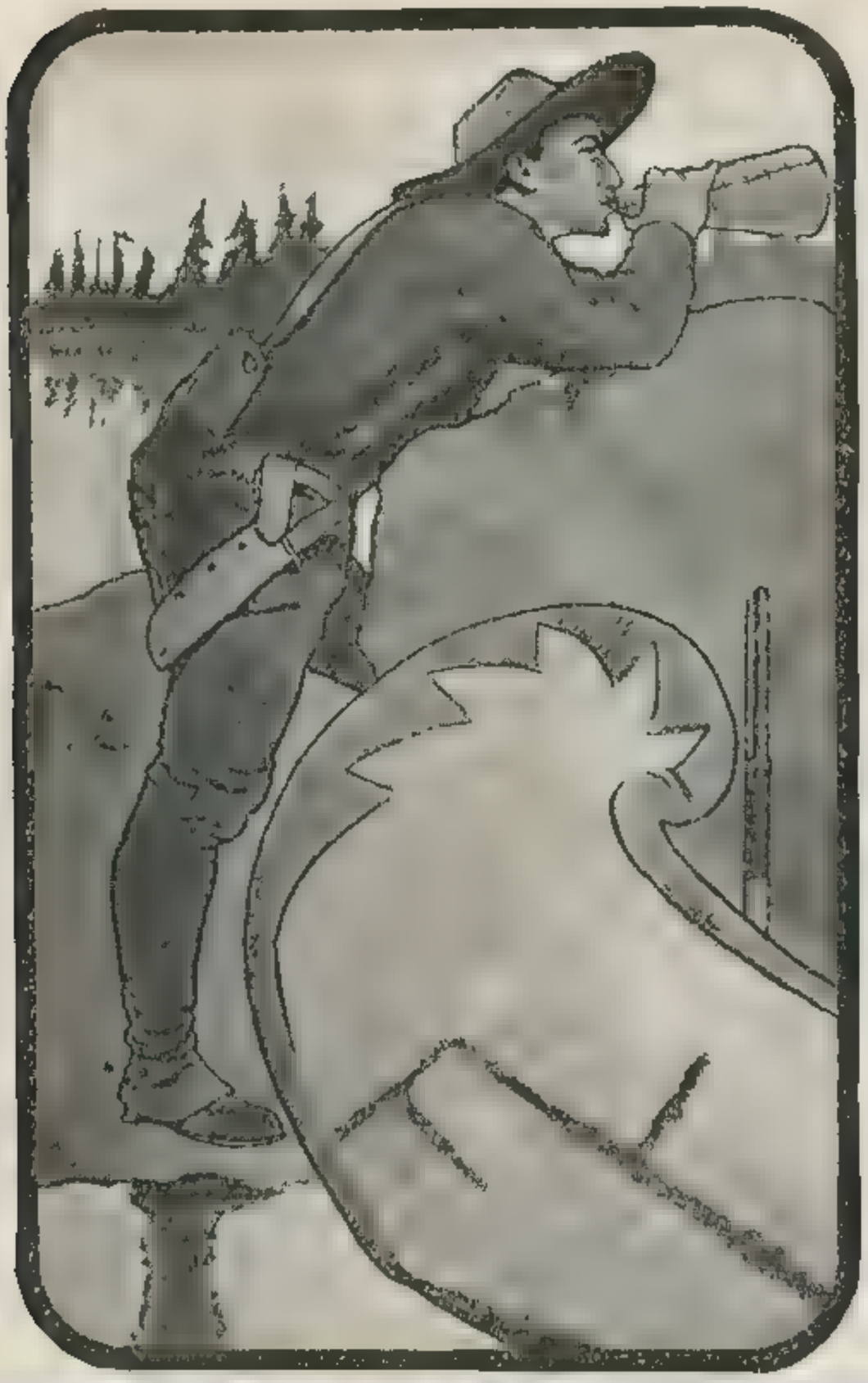

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JOYOUS VACATION DAYS

Vacation time is here again. Where are you going this summer, and how?

There are many delightful places, Lake Chautauqua, St. Lawrence River, Adirondack and White Mountains, Atlantic Coast, Canadian resorts, Niagara Falls, South Shore of Lake Erie Country, including its beautiful Islands; lake regions in Southern Michigan and Northern Indiana, Yellowstone country and Colorado places.

The service of the Lake Shore & Michigan Southern Railway—unequaled for completeness and comfort—may be used with greatest advantage for reaching all of these places

SUMMER BOOKS—Sent for eight cents in postage, or two cents postage for any one, by undersigned: "The Ideal Vacation Land," "Lake Shore Tours," "Lake Chautauqua," "Quiet Summer Retreats," "Travel Privileges," "Book of Trains."

PRIVILEGES—A number of enjoyable privileges are accorded on tickets over the Lake Shore; stop-over at Lake Chautauqua, Niagara Falls, Lake Erie Islands, also option of boat or rail, either way, between Cleveland and Buffalo, etc.

Any information for perfecting your vacation plans gladly furnished.

A. J. SMITH, G. P. & T. A., Cleveland, O.

JOYOUS VACATION DAYS

Vacation time is here again. Where are you going this summer, and how?

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The service of the Lake Shore & Michigan Southern Railway unequaled for completeness and comfort — may be used with greatest advantage for reaching all of these places.

Privileges—A number of enjoyable privileges are accorded on tickets over the Lake Shore: stop-over at Lake Chautauqua, Niagara Falls, Lake Erie Islands, also option of boat or rail, either way, between Cleveland and Buffalo, etc.

Summer Books Sent for six cents in postage by undersigned: "Lake Shore Tours," "Lake Chautauqua," "Quiet Summer Retreats," "Privileges for Lake Shore Patrons," "Book of Trains."

Any information for perfecting your vacation plans gladly furnished.

Boston Excursions—Over the Lake Shore, July 2, 3, 4 and 5. Good until September 1. Very low rates. All railways sell in connection with Lake Shore.

Chautauqua Excursions—Over Lake Shore, July 3 and 24, from all points west of Cleveland, O. Good 30 days.

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Beautifies and preserves the complexion. A positive relief for chapped hands, chafing and all skin afflictions. Mennen's face on every box. Be sure that you get the original. Sold everywhere, or by mail 25 cents. Sample free.
GERHARD MENNEN CO., Newark N. J.
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NOW, there's one thing about our advertising which does not entirely suit us—and we're going to speak frankly:

"Y and E" System

¶ You have built—or helped to build—a substantial business.

¶ You've carried it to the point where it isn't policy to give your personal attention any longer to matters of office routine and detail.

¶ Yet the insight and the experience which have secured for you your degree of success, enable you to see at a glance defects which would pass unnoticed by your employes.

¶ Now, while it's true that we constantly receive requests for our complete catalogue No. 830 on the subject of "Y and E" Filing and Record Systems from business men who rarely answer advertisements at all—we feel that the proportion would be much bigger if the owner, partner or manager realized the possible benefit resulting from giving a little of his thought to the subject of office filing methods.

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Sent to any business or professional man writing on his office stationery, enclosing 4 [illegible] Sent to anyone else for [illegible] Stamps if you have an office

¶ The "Y and E" Idea stands for less Red Tape. It means doing away with special thinking wherever an automatic method will handle routine work—reducing correspondence and record-keeping to their simplest forms. We've kept in mind—in preparing this catalogue—the fact that you have not time to wade through needless detail.

¶ The ideas set forth have been made so clear—are illustrated so carefully—that your training will enable you to determine quickly whether we have any methods which would reduce effort and expense in your offices.

¶ We shall take pleasure in mailing you, postpaid, copy of complete "Y and E" catalogue No. 830; to your home address, if you like—where you may look it over at your leisure.

"Y and E" System

Yawman & Erbe Mfg. Co.

Makers of "Y and E" Office Filing Systems

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"Y and E" System

Instantaneous

The word instantaneous is defined by Webster to mean that which takes place without noticeable delay.

MONARCH
Water Heaters
HEAT WATER INSTANTANEOUSLY

Night or Day In Any Quantity

COMPACT, SIMPLE, SAFE, DURABLE, ECONOMICAL.

Attachable to any faucet in

Bathroom, Sink, or Cellar

Write us your troubles, and ask for Catalogue G

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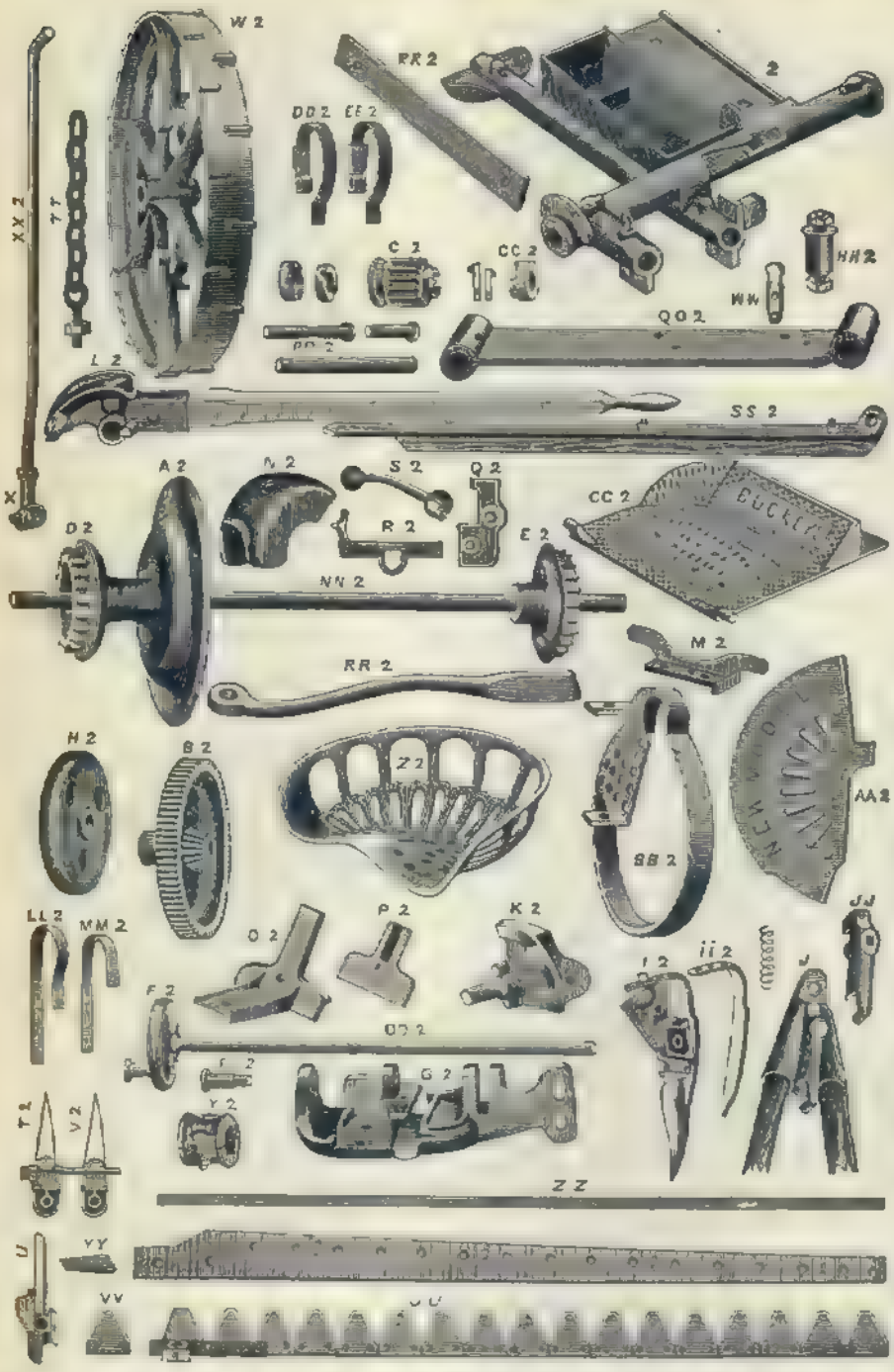
NEWARK ADVERTISER

LEADS

BUCKEYE NEW MODEL TWO HORSE STANDARD GEAR MOWER.

Net Price List of Duplicate Parts.



	Main Frame	$8 [illegible]
A2	Bevel Gear	.50
B2	Spur Gear and Bev. Pin	2.00
C2	Spur Pinion	.60
D2	Left Hand Driv. Ratch.	.75
E2	Right Hand Driv. Ratch.	.75
F2	Crank Balance, complete.	1.25
F2	Crank Balance, no pin	.75
G2	Inside Shoe, '72-'87	2.25
G2A	Inside Shoe, malleab., '88	3.00
G2B	Inside Shoe Cap, '88	.25
	Rear Wheel for Inside Shoe	.25
	Roll and Bolt for same	.30
	Gag Spring for Inside Shoe	.15
	Gag Spring Button	.10
H2	Lead Wheel	.75
I2	Outside Shoe, complete	1.75
J2	Track Clearer Iron & Slide	1.00
K2	Lever Axle, '72-'87	.60
K2A	Lever Axle, '88	.75
	Lever Axle Spring, '88	.30
L2	Lever Ratchet, '72-'87	.60
L2A	Lever Ratchet, '88	.75
	Lever Ratchet Pawl, '88	.20
L2B	Lever Ratchet, '94	.75
LC	Foot Lever, '94	.65
LD	Chain Eye for Lever Ratchet, '94	.10
	Foot Lever Pin, '94	.20
	Foot Lever Chain, '94	.35
	Foot Lever Spring, '94	.10
	Lever Hand Trip, '88	.10
	Lever Trip Rod, '88	.10
	Lever Handle (Wood), [illegible]	.30
	Lever Handle (Wood), '88	.30
M2	Finger Bar Rest	.15
N2	Crank Fender	1.00
O2	Seat Spring Chair, '73	.45
P2	Seat Spring Chair Cap, '73	.15
Q2	Shipper Stand	.25
R2	Shipper Clutch	.75
S2	Shipper Lever	.75
T2	In. Guard Finger, '72-'87	.25
U2	Scythe Head, [illegible] '87,	1.00
U2A	Scythe Head, '88	1.00
V2A	Guard Finger, '88	.35
W2	Drive Wheel	.75
X2	Pitman Rod Box, '72-'87	.60
X2A	Pitman Rod Box, '88	.60
X2B	Pitman Rod Box, '88	1.00
Y2	Clamp Collar for Axle	.10
Z2	Seat	1.00
L4	Tilting Lever Handle	.75
K4	Tilting Lever Axle	.75
N4	Tilting Lever Connection	.25
M4	Tilting Lever Pawl	.15
	Tilting Lever Spring	.25
	Tilting Lever Hand Trip	.15
	Tilting Lever Trip Rod	.15
AC2	Pitman Rod Fender	.35
C1	Chafe Plate, with bolt, ea.	.20
AA2	Bevel Gear Fender	.50
BB2	Spur Gear Fender	.25
CC2	Tool Box Cover	1.25
DD2	Right Hand Pawl Spring.	.10
FF2	Left Hand Pawl Spring	.10

No.		
FF2	Crank Pin	$0.50
	Crank [illegible] Self Hang.	.75
GG2	Clutch Collar on Clutch Shaft	.20
HH2	Roll and bolt to Lead Wheel	.25
I2	Outside Shoe Spring	.40
J2	Track Clearer Slide	.25
KK2	Main Seat Spring	1.00
2	Seat Spring Leaf	.[illegible]
LL2	Side Bow Spring, '73	.[illegible]
MM2	Back Bow Spring, '73	.30
NN2	Axle Shaft (naked)	2.50
OO2	Crank Shaft (naked)	1.25

No.		
PP2	Spur Gear Stud	$0.50
QQ2	Wrought Hinge Joint	2.00
RR2	Front Brace	1.25
SS2	Back Brace complete	1.50
TT2	Lifting Chain	.10
UU2	Complete Scythe, 5 ft.	3.00
	Complete Scythe, 4 ft. 9 in.	2.75
72-87	Complete Scythe, 4 ft. 6 in.	2.50
	Complete Scythe, 4 ft. 3 in.	2.50
72-87	Complete Scythe, 4 ft.	2.25
	Complete Scythe, 3 ft. [illegible]	2.00
VV2	Knife Section,	.05
WW2	Scythe Button	.10

No.		
XX2	Pitman Rod, '72-'87, no box	.75
2	Pitman Rod, '72-'87, no box	1.00
2	Pitman Rod, '88	.75
YY2	Guard Finger Bar	.60
ZZ2	Scythe Knife, riveted, '88	1.50
	Long Hinge Pin	.20
	Short Hinge Pin	.10
	Finger Bolts, Steel	.15
	Track Clearer Bolt with Thimble	.15
	Bolts, common sizes	.05
	Rivets, per pound	.20

BUCKEYE TWO-HORSE NEW MODEL STANDARD GEAR MOWERS.

Net Price List of Duplicate Parts Continued.

	Coil Spring for Track Clearer Slide	$0.05		Linch Pin	$0.05
	Track Clearer Sticks, each	.25		Spring Key	.03
	Oil Can	.15		Set Screw	.10
	Cold Chisel	.25		Screw Wrench	.35
	Punch	.10		Finger Bar, 4 ft., drilled	4.50
	Axle Washer	.05		Finger Bar, 4 ft., with Fin. and Shoes	$16.00
				Pole	3.00
				Evener without Irons	.75
				Whiffletree, each	.50
				Clevis and Bolt for Whiffletree	.20
				Neck Yoke, complete	1.00

BUCKEYE STANDARD A MOWERS, 4 1-2 AND 5 FEET.

Net Price List of Duplicate Parts.

No.			No.			No.		
A1	Crank Balance, complete	$1.25		Tilting Lever Handle, complete, [illegible]	$1.25	A56	Foot Lever Pin	$0.20
G2D	Shoe Cap	.15		Tilter, complete	2.25	A53	Crank Pin self threading	.75
G2E	Shoe Cap Hinge	.15	A18	Inside Shoe	2.50	A58½	Cap Screw (L. H. Thread), and Washer for A58	.10
G2F	Shoe Cap Hinge Spring	.10	D24	Crank Fender	1.00	B62	Roller Bearing Cage	.30
I	Track Clearer Iron, complete	1.00	A29	Axle Shaft (naked), 5 ft.	2.50	B63	Roller Spindles, each	.02
K1	Seat Spring Leaf	.60	NN2	Axle Shaft (naked), 4½ ft.	2.50	D64	Evener Iron on Pole	.20
	Foot Lever, complete	1.30	D33½	Back Brace Socket	.35	A65	Lever Handle Wood	.30
N	Finger Bar Rest	.15	A34	Pitman Rod	.75		Lever Handle, complete, less axle	1.65
O	Shifter Stand	.20	A35	Axle Washer	.05	B2A	Spur Gear and Bevel Pinion	2.00
P	Stopper Catch	.20	A36	Pole Hinge Pin	.15		Finger Bolt (steel)	.05
S	Stopper Lever	.20	E37	Scythe Rod, drilled, 5 ft.	1.75		Track Clearer Bolt with Thimble	.15
U3B	Scythe Head	.40	E37½	Scythe Rod, drilled, 4½ ft.	1.50		Bolts, common sizes	.05
W2	Drive Wheel, 4½ ft.	5.00	E38	Finger Bar, 5 ft., drilled (naked)	5.00		Rivets, short, per lb.	.70
X1	Shoe Plate (2 holes)	.06	E38½	Finger Bar, 4½ ft., drilled (naked)	4.75		Rivets, long, per lb.	.70
X	Main Frame	8.00	B39½	Scythe complete, 5 ft.	3.50		Track Clearer Sticks, each	.25
X2	Wrench Hinge Joint	.20	B39A	Scythe, complete, 4½ ft.	2.75		Oil Can	.15
X3	Front Brace	1.25	E41	Lever Spring, 5 ft.	.30		Cold Chisel	.25
X4	Brace Bracket and Nut	.50	E41½	Lever Spring, 4½ ft.	.30		Punch	.15
X10	Axle Sleeve, 5 ft.	.25	E42	Gag Spring for Inside Shoe	.15		Linch Pin	.05
X11	Crank Shaft (naked)	1.25	D43	Gag Spring Button	.10		Small Spring Cotters	.03
X12	Spur Gear Stud	.50	D44A	Front Brace Pin	.15		Set Screws	.10
X12½	Spur Gear Stud Washer	.05	D45A	Upper or Lower Hinge Pin	.25		Screw Wrench	.35
X13	Foot Lever Chain	.35	A49	Lever Ratchet Pawl	.20		Pole, standard	3.00
X14	Foot Lever Spring	.10	D50	Lever Pawl Spring	.10		Evener	.75
X15	Tilting Lever Spring or Track Clearer Spring	.05	A51	Lever Hand Trip	.20		Whiffletrees, each	.50
X16	Tilting Lever Trip Rod	.10	A51½	Lever Trip Rod	.10		Neck Yoke	1.00
X17	Tilting Lever Hand Trip	.15						

When repair parts for the Standard A Mowers 4½ and 5 feet, are wanted and such parts are not mentioned in above list, order from the New Model Standard Gear List such parts are interchangeable. Always when possible give letters and figures on old piece when ordering.

BUCKEYE ONE-HORSE NEW MODEL STANDARD GEAR MOWERS.

Net Price List of Duplicate Parts.

No.			No.			No.		
A3	Bevel Gear	$2.00	U3	Scythe Head	$0.40	SS3	Back Brace, complete	$1.25
B3	Spur Gear and Bevel Pinion	1.50	V3	Common Guard Finger	.25	TT3	Lifting Chain	.50
C3	Spur Pinion	.50	W3	Drive Wheel	4.50	UU3	Complete Scythe, 3½ ft.	2.00
D3	Left Hand Driving Ratchet	.75	X3	Pitman Rod Box	1.00	XX3	Pitman Rod, no Box	.75
	Right Hand Driving Ratchet	.75	Y3	Clamp Collar for Axle	.30	YY3	Guard Finger Plate	.06
	Crank Balance, comp. '72-'87	1.00		Main Frame	7.00		Crank Balance, no Pin	.60
	Crank Balance, complete, '88	1.35	AA3	Bevel Gear Fender	.50		Stub Socket for Thills	1.25
	Inside Shoe, '72-'87	2.00	BB3	Spur Gear Fender	1.00		Thills, right hand	1.50
	Inside Shoe, '88	2.75	CC3	Tool Box Cover	1.00		Thills, left hand	1.50
	Inside Shoe Cap, '88	.25	DD3	Right Hand Pawl Spring	.40		Cross Bar for Thills	1.25
	Rear Wheel	.60	EE3	Left Hand Pawl Spring	.15		Socket for Thills	.75
	Outside Shoe, complete	1.75	FF3	Crank Pin	.50	AC3	Pitman Fender	.50
	Lever Axle, '72-'87	.60	GG3	Clutch Collar on Crank Shaft	.20	O3	Chafe Plates with Bolts	.20
	Lever Axle, '88	.75	HH3	Roll and Bolt to Lead Wheel	.25		Whiffletrees	.50
	Lever Ratchet, '72-'87	.60	KK3	Main Seat Spring	1.00	LC3	Foot Lever	.65
	Lever Ratchet, '88	.75		Seat Spring Leaf	.60		Foot Lever Pin	.20
	Lever Ratchet, '94	.75	NN3	Axle Shaft (naked)	2.00		Foot Lever Chain	.35
	Lever Handle, wood, '72-'87	.30	OO3	Crank Shaft (naked)	1.00		Foot Lever Spring	.10
M	Finger Bar Rest	.15	PP3	Spur Gear Stud	.50		Cap Screw and Washer for Crank Pin (L. H. Thread)	.10
N3	Cross Bar	1.50	QQ3	Wrench Hinge Joint	.20			
I3	Inside Guard Finger	.25	RR3	Front Brace	.50			

The parts of One-Horse New Model Mower not mentioned above are same price, and will interchange with parts of the Two-Horse New Model Mower.

No. 500

POCKET EDITION

Plain Metal Case, Velvet Lined

No. 500 Triple Silver Plated Case and Razor..... **$5.00**

No. 500 A Gun Metal Case and Gold Plated Razor..... **5.50**

No. 500 B Gold Plated Case and Gold Plated Razor..... **6.00**

Above sets contain 12 double-edged Gillette blades in metal box plated to match razor

No. 501

POCKET EDITION

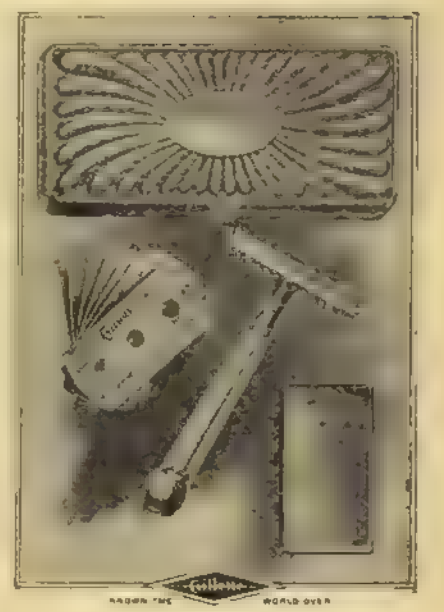
Basket Pattern—Metal Case, Velvet Lined

No. 501 Triple Silver Plated Case and Razor..... **$5.00**

No. 501 A Gun Metal Case and Gold Plated Razor..... **5.50**

No. 501 B Gold Plated Case and Gold Plated Razor..... **6.00**

Above sets contain 12 double-edged Gillette blades in metal box plated to match razor



No. 502

POCKET EDITION

Shell Pattern—Metal Case, Velvet Lined

No. 502 Triple Silver Plated Case and Razor..... **$5.00**

No. 502 A Gun Metal Case and Gold Plated Razor..... **5.50**

No. 502 B Gold Plated Case and Gold Plated Razor..... **6.00**

Above sets contain 12 double-edged Gillette blades in metal box plated to match razor

No. 503

POCKET EDITION

Flower Pattern—Metal Case, Velvet Lined

No. 503 Triple Silver Plated Case and Razor..... **$5.00**

No. 503 A Gun Metal Case and Gold Plated Razor..... **5.50**

No. 503 B Gold Plated Case and Gold Plated Razor **6.00**

Above sets contains 12 double-edged Gillette blades in metal box plated to match razor

No. 504

POCKET EDITION

Empire Pattern—Metal Case, Velvet Lined

No. 504 Triple Silver Plated Case and Razor..... **$5.00**

No. 504 A Gun Metal Case and Gold Plated Razor..... **5.50**

No. 504 B Gold Plated Case and Gold Plated Razor..... **6.00**

Above sets contain 12 double-edged Gillette blades in metal box plated to match razor

No. 00

STANDARD COMBINATION SET

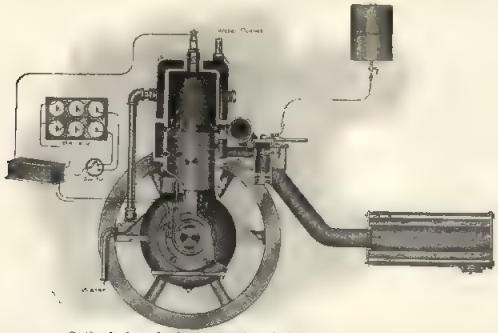
No. 00 Consists of Triple Silver Plated Razor, Badger Hair Shaving Brush, Triple Silver Plated Holder, Stick Gillette Shaving Soap in Triple Silver Plated Holder, two Metal Blade Boxes and 12 double-edged Blades all contained in Seal Grain Leather Case..... **$6.50**

1906 Cushman 2-Cycle Marine Motors

Cushman 1906 marine engines are of special interest on account of their flexibility and light weight. These 2-cycle gasoline marine motors are made by Cushman 2-Cycle Engine Company, 2020 N. Street, Lincoln, Nebraska, and are the result of a very careful review of the 2-cycle motor problem. The design on which they are built has been adopted after the most thorough experimentation, with power, fuel consumption, flexibility, weight, durability and all other features kept in mind.

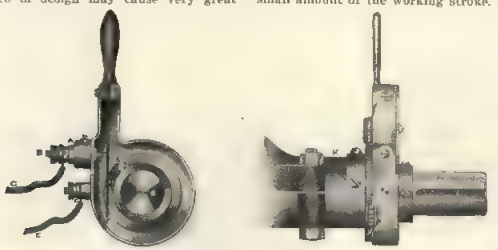
The Cushman 2-cycle motor, as shown in the cross sectional cut, is valveless and of the enclosed crank type, differing little from any other 2-cycle motor of that type. Still, slight differences in design may cause very great difference in results accomplished. The horse power of a motor may vary from ten to twenty per cent. by simply changing the position of the deflector on the piston without in any way effecting the port areas. It would vary still more by changing the position of the ports slightly without changing the areas, and at the same time consume the same amount of gasoline per hour. Therefore, long and extended tests were made to determine the exact position, shape and size of both the deflector and the ports of the Cushman motor.

A motor of a three inch stroke and bore was connected to a dynamo and an electrical test was made, which showed a little over 1½ H. P. at 1000 rev. The position of the parts named was then altered and another test was made, and so on until finally 3 H. P. was obtained at 950 rev. for this same motor.



Sectional view, showing construction of Cushman 2-cycle motors.

The cylinder, water jacket and head of Cushman motors are cast in one piece, but the cylinder without ports. After the cylinder is bored, reamed and finished the ports are then cut. They are in the form of a row of slots extending nearly half way round the cylinder, thus making a port of very large area and at the same time taking off but a small amount of the working stroke.

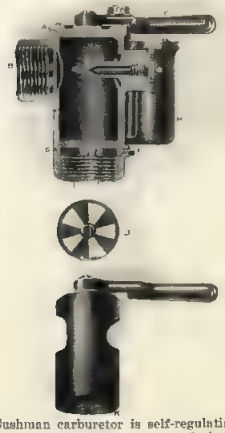


The Cushman Spark Shifter.

The feed and exhaust chamber are covered by a port band extending nearly around the cylinder and cut in two halves, which can easily be removed to inspect the piston, piston rings, or to remove any carbon that may collect in exhaust ports, this device being patented. The crank shafts are drop forged and crank and wrist pins hardened. The connecting rod is of phosphor bronze, and as it runs

on a hardened bearing will stand several seasons without adjusting.

Another patented feature of the Cushman motor is a device to prevent leakage around the crank shaft. It consists of a bronze ring fitted close to the shaft and held out against the inside of the crank case by three coil springs in the ring. This ring is caused to revolve with the shaft by means of a pin placed in the side of the crank, thus preventing the hole in the ring from wearing any larger and causing a leak, the entire wear being on the outer surface of the ring, which is kept up against the case by the springs. This not only makes an air-tight joint around the shaft that will always remain so, but allows of the use of an adjustable bearing in the two halves that may be taken up at any time.



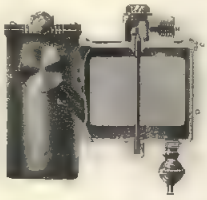
The Cushman carburetor is self-regulating, and is of the popular float feed type, designed especially for this motor's requirements. The float used is of the best quality of cork, coated with a preparation not soluble in gasoline. The carburetor is provided with a throttle having its cut-off on the side next the engine, with air openings at the bottom corresponding with openings in an adjustable disc directly under the throttle valve. This disc may be set so as to increase or decrease the suction on the gasoline as the throttle is opened or closed, thus providing a mixture of gas and air exactly the same proportions at all speeds and loads.

Ignition is by jump spark. In the spark shifter a roller cam is placed on the shaft which comes against a spring carrying one contact point, the other contact point being held in position by means of a piece of fibre, which also insulates same. These contact points are the famous "Baker" points, which are of hardened platinum, and last indefinitely.

The piston rings are of gray iron and are finished by a special process, which insures a perfect bearing of the entire outer surface of the ring against the cylinder wall. The rings are ground on both sides, also the grooves in which they fit, making a piston that will retain the compression when first put together and come up to its required horse power on the start. Micrometer work is used throughout, and the parts are interchangeable.

These motors are finished with four coats of dark green baking enamel and polished brass trimmings. All water connections are brass

The Cushman marine motors are made in 2, 4 and 7 H. P. sizes with single cylinders,



The Cushman Carburetor, sectional views and parts

and in 4, 8 and 14 H. P. sizes with double cylinders.

"Doman" Marine Motors

We herewith illustrate the latest gasoline marine engine brought out by the H. C. Doman Marine Engine Company, of Oshkosh, Wisconsin. This company has been manufacturing gasoline marine motors, engines and complete launches up until August 1, 1905, but on account of their room

The "Doman" Vaporizer.

being limited, and there being a great demand for their motors, they were compelled to drop the launch business and use their entire room and double their force to manufacture motors. They are now turning out motors from 2½ to 40 H. P. and from 1 to 6 cylinders, with four sizes of bore and stroke, namely, 4x4 ins., 4x5 ins., 5x5 ins., 5x6 ins. The Doman motors are of the 4-cycle type.

Only the best grade of material is used in the manufacture of the Doman motor. Every piece of the motor is manufactured in their own shops, by workmen thoroughly experienced in this line, and with the latest improved machinery, according to the most improved methods, and is carefully inspected

CROWN 14-KARAT GOLD FILLED

GUARANTEED FOR TWENTY-FIVE YEARS

WITH SOLID GOLD RAISED ORNAMENTATION

The above designs are made plain or satin finish, with or without diamond.
Price with diamond, $24 00 Price without diamond, $17 00
In ordering state design number, style of finish, and price.

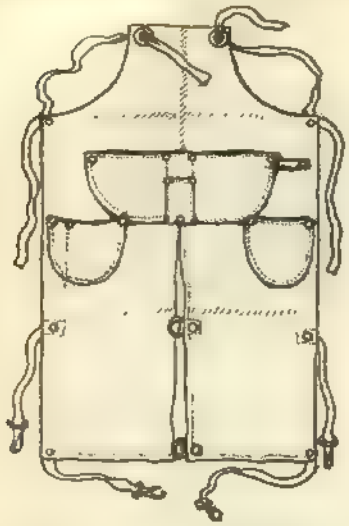
CROWN 14-KARAT GOLD FILLED

GUARANTEED FOR TWENTY-FIVE YEARS

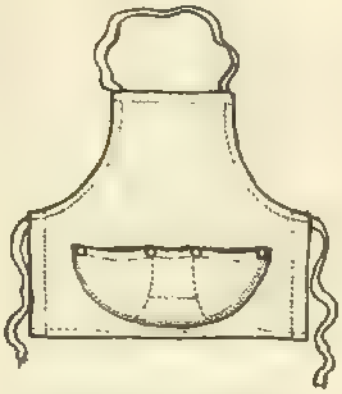
WITH SOLID GOLD RAISED ORNAMENTATION

The above designs are made plain or satin finish, with or without diamond.
Price with diamond, $22.00. Price without diamond, $16.00.
In ordering state design number, style of finish, and price.

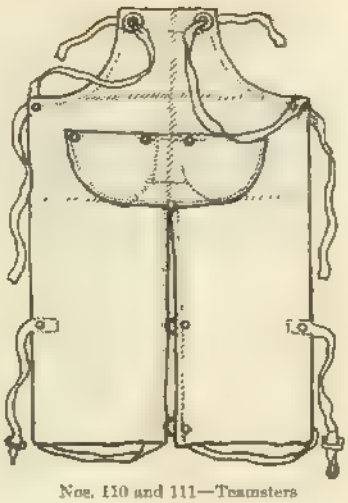
Aprons



Nos. 101 to 104—Special Carpenters



Nos. 81 and 85—Short Carpenters



Nos. 110 and 111—Teamsters

Short Carpenters, Three Pockets, Neck and Hammer Straps, Riveted, Double Sewed

No.		Per Doz.
81	8 oz. White Duck, 24 in. long	$3.50
85	8 oz. Brown Duck, 24 in. long	4.00

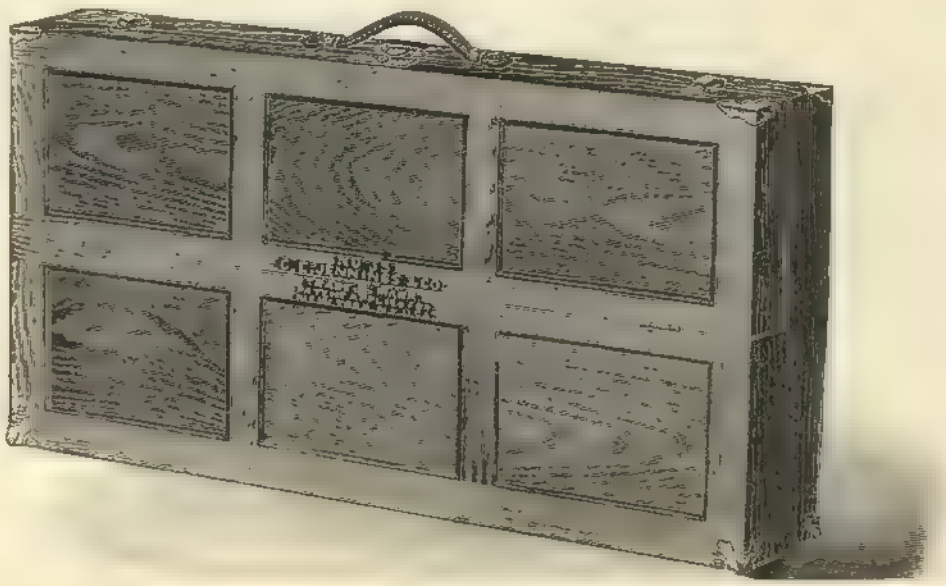
Special Carpenters, Seven Pockets, Suspender and Hammer Straps, Riveted, Double Sewed

No.		Per Doz.
101	10 oz. White Duck, 40 in. long, Four Leg Straps with Snaps	$12 00
102	10 oz. Brown Duck, 40 in. long, Four Leg Straps with Snaps	13.00
104	10 oz. Brown Duck, 40 in. long, with Closed Leg	16 00

Teamsters, Three Pockets and Hammer Strap, Riveted, Double Sewed

No.		Per Doz.
110	10 oz. White Duck, 44 in. long, Four Leg Straps with Snaps	$10.00
111	10 oz. Brown Duck, 44 in. long, Four Leg Straps with Snaps	11 00

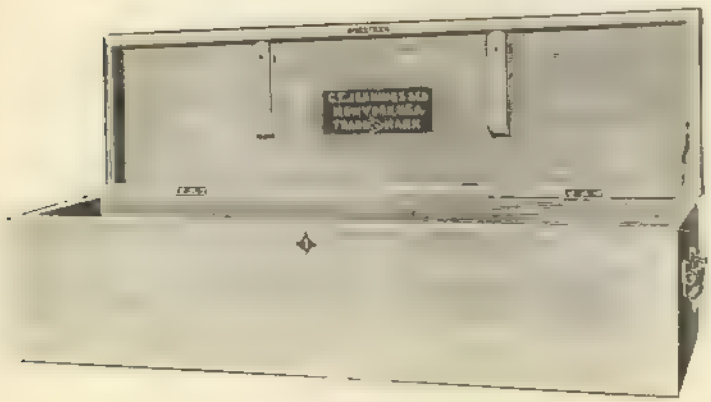
Carpenters Tool Chests



No.		Each
35	Selected Hardwood, Paneled, 34¼×17×6 in. Outside, Removable Tray, Brass Lock, Leather Handle, Rings for Shoulder Straps, Metal Corners, Weight Empty, 15 Pounds	$10.00

Tool Chests

CARPENTERS SHOULDER



Portable Tool Chest, made of Chestnut, with Dovetailed Corners, has Drop Handles, Lock and Elbow to Support the Lid, and Rack for holding Saws up to 28 in. Inside dimensions 33 in. long, 8 in. wide and 8 in. deep.

No.		Each
20	—Weight (Empty), 11 Pounds...	$7.00

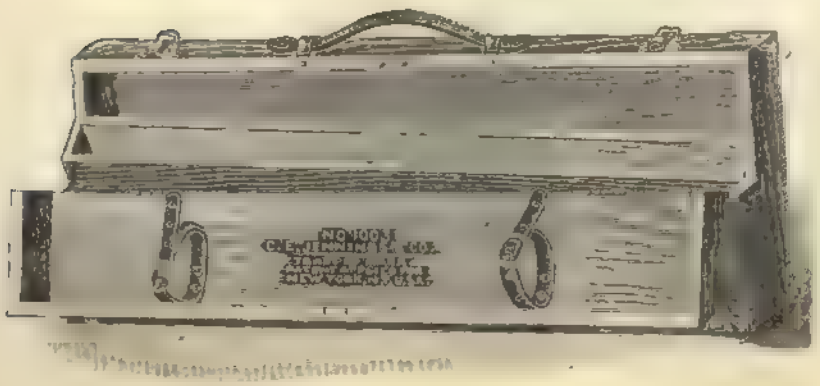
MACHINISTS OR JEWELERS

Made of Selected Quartered Oak, Yale Pattern Lock, Metal Elbow to support Lid, and a patent device for locking all the drawers automatically by closing the lid.

No.		Each
1-0	—Two Drawers and Top receptacle, Outside Dimensions 20⅝ in. long, 13 in. wide and 10½ in. high, Wt. (Cased), 37 Pounds..	$15.00
2-0	—Three Drawers and Top receptacle, Outside Dimensions 23½ in. long, 14½ in. wide and 12 in. high, Wt. (Cased), 56 Pounds.	$18 00
5-0	—Four Drawers and Top receptacle, Outside Dimensions 21½ in. long, 14½ in. wide and 13 in. high, Wt. (Cased), 45 Pounds.	$21.00

All above packed one in a Case

ELECTRICIANS



Made of Hardwood, handsomely finished, Brass Lock, Leather handle with Rings for strap to pass over shoulder, Metal Clasps, Metal Corners and removable Tray, will hold 24 in. Electricians Bits and 24 in. Bit Extension.

No.		Each
1003	—Outside Dimensions 25⅝ in. long, 9⅛ in. high and 5¼ in. wide Wt. (not Crated), 7¼ Pounds ..	$6.00

Packed six in a Crate

LANTERNS AND LAMPS.

Monarch.
No. 1 Burner, ¾ in. Wick, No. 1 Globe

Blizzard No. 2.
No. 2 Burner, 1 in. Wick, Blizzard Globe.

Royal.
No. 2 Burner, 1 in. Wick, No. 2 Globe

No. 39 Standard Railroad.
Double Guard.

PRICE LIST.

TUBULAR LANTERNS.

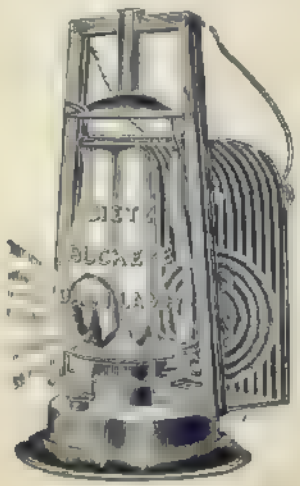
	Mfrs. Price.	Our Net Price.
Monarch, per dozen,	$ 9.50	each $0 .50
Royal, " "	13.00	" .75
Blizzard No. 2, per dozen,	16.00	" 1.00
" Junior, " "	12.00	" .75
Buckeye Dash Lamp, per doz.	13.50	" .75
No. 3 Globe Hanging Lamp, each,	6.00	" 5.00
No. 3 Globe Street Lamp, each,	6.00	" 5.00

Not Tubular.

No. 39 Standard Railroad, Double Guard, No. 1 Ratchet Burner.	11.00	" 1.00

Blizzard Junior.
No. 1 Burner, ⅝ in. Wick Junior Globe.

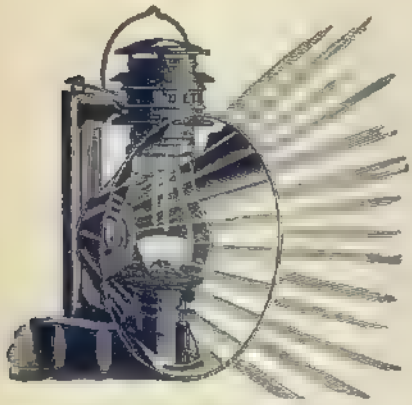
No. 3
Globe Hanging Lamp.
No. 3 Burner, 1 ½ in. Wick, No. 3 Globe.



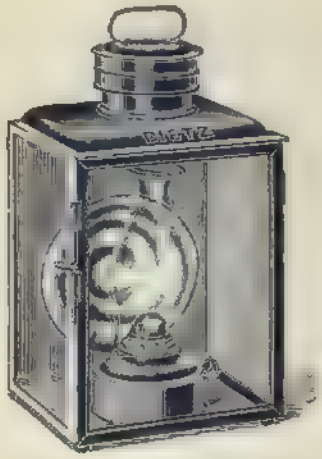
Buckeye Dash Lamp.
No. 1 Burner, ⅝ in. Wick, No. 0 Globe.

No. 3 Globe Street Lamp.
No. 3 Burner, 1 ½ in. Wick, No. 3 Globe.

LAMPS AND LANTERNS.

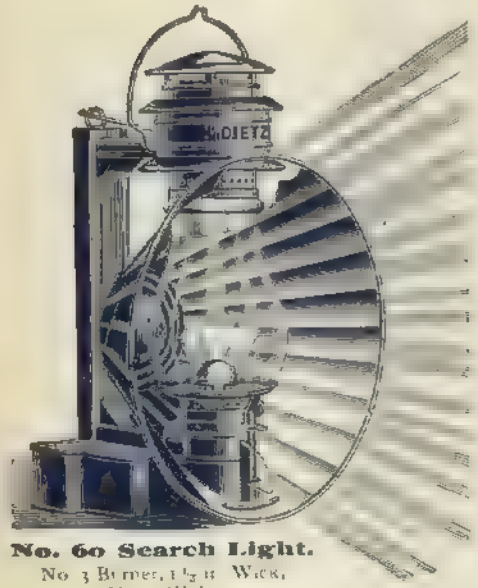


No. 30 Search Light.
No. 2 Burner, 1 in. Wick, No. 0 Globe.



Square Station Lamp.
Three sizes, Nos. 1, 2 and 3.

No. 25 Side Lamp.
No. 2 Burner, 1 in. Wick,
Blizzard Globe.



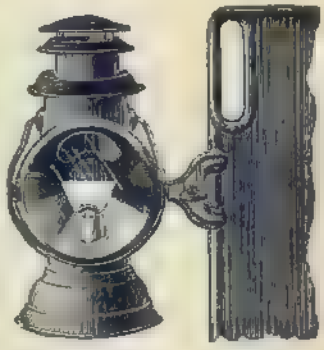
No. 60 Search Light.
No. 3 Burner, 1⅛ in. Wick,
No. 2 Globe.

PRICE LIST
TUBULAR LANTERNS.

	Mfrs. price, per dozen.	Our net price, each.
No. 30 Search Light,	$30.00	$1.75
" 60 " "	72.00	4.50
" 25 Side Light,	22.00	1.25
Union Driving Lamp,	42.00	3.00

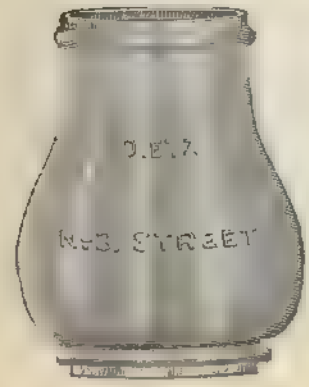
NOT TUBULAR.

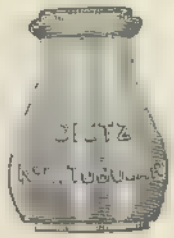
	Mfrs. price, each.	Our net price, each.
Station Lamp No. 1, 8 x 10, No. 1 Burner, 7 in. Reflector,	$2.50	$2.25
Station Lamp No. 2, 10 x 12, No. 2 Burner, 8 in. Reflector,	2.90	2.50
Station Lamp No. 3, 11x15½, No. 2 Burner, 10 in. Reflector,	3.30	3.00

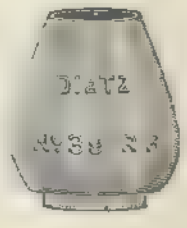


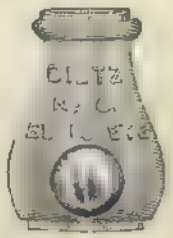
Union Driving Lamp.
Light, 20 candle power.

TUBULAR LANTERN GLOBES.









	Mfrs. price, per doz.	Our net price, each
No. 0 White,	$0.90	$0.10
" 1 "	1.42	.12
" 2 "	4.80	.35
Blizzard, "	1.40	.12
Junior, "	90	.10
No. 3, "	6.40	.50
" 39 Railroad, White	3.00	.25
" 0 Bull's Eye "	1.92	.15
" 0 Ruby	3.50	.25

Sad Irons.

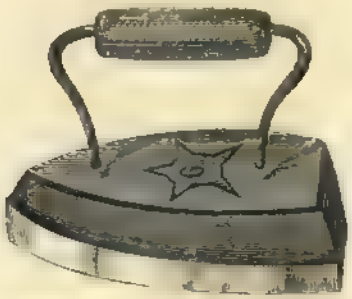
Code Cavade — Per Set

No. 50—Mrs. Potts' Pattern, Nickel Plated, Tinned Cap, Double Pointed, in Sets of Three Irons, with Handle and Japanned Stand, . . . $1.50
Weight, 20 lbs. Per Set.

Code Cavadeidi — Per Set

No. 55—Mrs. Potts' Pattern, Polished Tinned Cap, Double Pointed, in Sets of Three Irons, with Handle and Japanned Stand, . . . $1.25
Weight, 20 lbs. Per Set

Six Sets in a Case.



Code Cavadeidi — Per Set

Geneva, Silver Polished Face, 4, 5, 6, 7, 8, 9, 10 lbs., ... $0.06

Code Cavadeidi — Per Set

Troy Polishing, Polished, Perforated Face, $6.00
Weight, 4 lbs. Each.

BAKER & HAMILTON

Tailors' Geese.

Regular, Polished Face.

Weight Each, lbs., .	14	16	18
Code	Cavalquet.	Cavamen	Cavaminis.
Per Pound, . .	$0.10	.10	.10
Weight Each, lbs., .	20	22	24
Code	Cavandely.	Cavandonil.	Cavandonim
Per Pound, . .	$0.10	.10	.10

Charcoal Irons.

Code Cavastan — Per Dozen

No. 4—Family, Double Flue . . $15.00
Weight, 7 lbs. Each.

Code Cavalajo

No. 6—Tailors', Double Flue, . . . 24.00
Weight, 18 lbs. Each

Sad Iron Handles.

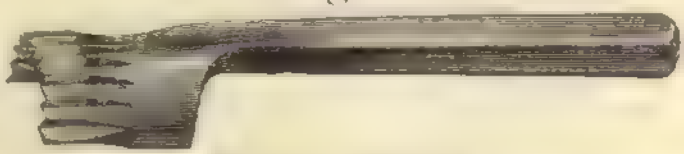
Code Caveaching. Per Dozen
No. 1—Mrs. Potts Pattern, Walnut Handle, Japanned Iron Stretcher, with Slide Knob, ... $1 25
Weight, 6 lbs. Per Dozen.

Code Cavoale. Per Dozen
No. 100—Enterprise, Mrs. Potts, Walnut Handle, Wrought Stretcher, Tinned, with Slide Knob, . . . $3.00
Weight, 6 lbs. Per Dozen.

Code Caveadbus. Per Dozen
No. 0—Perfection, Nickel Plated Steel Handle and Stretcher, Asbestos Filled under Handle Brace Fits all Potts Sad Irons, . . . $3.00
Weight, 8 lbs. Per Dozen.

Code Cavealis. Per Dozen
No. 15—Stuart, Walnut Handle, Nickel Plated Wrought Stretcher, with Slide Knob, Fits all Potts Sad Irons, $3.00
Weight, 5 lbs. Per Dozen.

Pinking Irons.



Cast Steel, Polished.

Inches,	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Code	Caveramus	Caveramo	Caveramas	Caveramalo	Caveramax	Caveramatax
Weight Per Dozen, lbs.,	1	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Per Dozen,	$2.50	2.50	2.50	2.50	2.50	2.50

One Dozen in a Box

Tracing Wheels.

Code Cavezzma. Per Dozen
No. 5—Single, Spring Steel Cutter, Ebonized Handle, ... $1.50
Weight, 1 lb. Per Dozen

Code Cavezzuola
No. 10—Double, Spring Steel Cutters Ebonized Handle, ... $3.00
Weight, 1¼ lbs. Per Dozen.

Code Cavicornia. Per Dozen
No. 11—Adjustable, Spring Steel Cutters, Ebonized Handle, . . . $5.00
Weight, 2 lbs. Per Dozen.

One Dozen in a Box

NATIONAL GALVANIZED FIRE PAILS.

ROUND BOTTOMS.
For factories, mills, gin houses, warehouses, steamboats, etc. Plain.

Fig. 886

GALVANIZED PAILS.
With deflected bottom.

Fig. 887.

ROUND BOTTOMS.
For factories, mills, gin houses, warehouses, steamboats, etc
Painted red outside.

Fig. 888.

FLAT BOTTOMS.
Painted red outside.

Fig. 889

GALVANIZED FIRE BUCKETS.

Flat Bottom.

10 quart	Per dozen	$4.50
12 "	" "	5.00
14 "	" "	5.50
16 "	" "	7.50

Painted red, $1.00 per dozen net.

Round Bottom.

10 quart	Per dozen	$6.75
12 "	" "	7.25
14 "	" "	7.50

Painted red, $1.00 per dozen net.

COVERS FOR GALVANIZED FIRE BUCKETS.

10 quart	Per dozen	$2.00
12 "	" "	2.25
14 "	" "	2.50
16 "	" "	4.00

Painted red, 25c per doz. net extra.

ASH OR GARBAGE CANS.

Strong: galvanized after being put together.

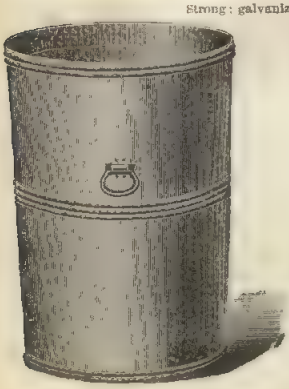


Fig. 890.

No	2½,	14 x 19	Each	$4.00	Covers . . Per dozen $7.50
"	3,	15 x 26	"	4.50	" " " 8.50
"	4,	17 x 26.	"	5.25	" " " 9.50
"	5,	18 x 26.	"	5.50	" " " 10.00
"	6,	20 x 28.	"	6.50	" " " 10.50

O I C PAILS.

Fig. 891.

Of quartered white oak with patented continual strap ear and bottom support. Weight, dozen, 100 lbs.
Price..... Per dozen $7.00

COMMON WOOD PAILS.

2 hoop..... Per dozen $3.00
3 " " 3.50

INDURATED FIBRE WARE.

FIG. 876

	Capacity about	Per Doz.	Crate Contains
Star, standard size	12 qts.	$3 60	½ doz.
Ladies' or Weavers'	6 "	3 00	½ "
Buggy	6 "	3 00	1 "
Deck, heavy bail and ears	12 "	4 20	½ "
Railroad or Factory	14 "	4 80	½ "
Milk or Dairy	14 "	4 80	½ "
Stable	14 "	4 80	½ "
"	16 "	6 00	½ "
"	18 "	7 20	½ "
"	20 "	7 80	½ "
Chamber, concave top	12 "	7 40	½ "
Slop, oval cover, No. 1	11 "	6 60	½ "
" " No. 2	12 "	5 40	½ "

FIRE PAILS.

Pails, stenciled "For Fire Only."

	Capacity about	Per Doz.	Crate Contains
Star, flat bottom	12 qts.	$3 60	½ Doz.
Railroad or Factory	14 "	4 80	½ "
Round Bottom	12 "	4 50	½ "
Deep, to hang up	10 "	4 80	½ "
Hooks to hang Deep Fire Pails		1 20	.....

FIG. 877.

Wood Jen Sleeves for Round Bottom Pails with brackets and screws, for 7 pails, 50c. each; for 3 pails 60c. each.

	Per Doz.	Crate Contains
Covers, for Star Railroad or Round Bottom Pails	$1 80	2 doz

FIG. 878.

UMBRELLA STANDS.

	Per Doz	Crate Contains
22 in. deep, 9 in. diam	$9 00	1/12 doz.

SPITTOONS.

	Per Doz.	Crate Contains
No. 1. 5½ in. high, 13 in. diam	$6 00	⅓ doz.
" 2. 5½ " " 11 " "	4 80	½ "
" 3. 4½ " " 9 " "	4 20	½ "
Nested, one each size, per nest	$1 25	2 nest

FIG. 879

SPITTOON TOPS.

No. 1. Tops only	$2 00	2 doz
" 2. " "	1 80	2 "
" 3. " "	1 60	2 "

Ask for Special List on Metal Top Spittoons.

KINGSTON,

1906-TYPE K,

AUTOMATIC CARBURETOR

EASY *TO UNDERSTAND TO OPERATE.*

Fuel controlled entirely by equalizing automatic air valves.

Will increase POWER and CONTROL of any 1905 FORD or OLDS car, or money back.

Positively will not accumulate fuel in, or CLOG LONG INLET PIPES.

Perfectly adapted to gasolene cars, boats, airships and motors for any kind of service.

Built for business by the oldest manufacturers in the business.

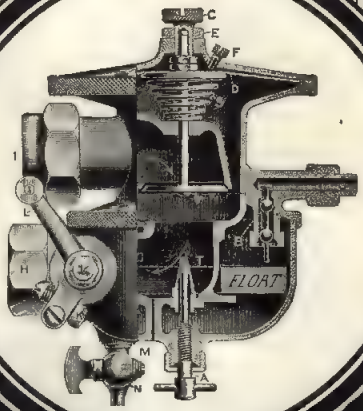
OVER 30,000 KINGSTON CARBURETORS IN USE.

KINGSTON MUFFLER

IMPROVED FOR 1906

BYRNE, KINGSTON & CO.,

KOKOMO, IND., U. S. A.



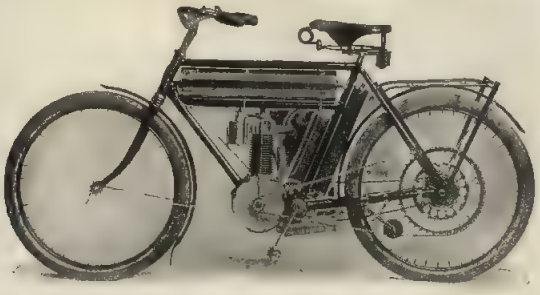
KINGSTON AUTOMATIC CARBURETOR

PRICE $50.

Above is illustrated the latest creation of Byrne, Kingston & Co.-the most successful carburetor in the world. It offers a combination of features and advantages never heretofore introduced. Our faith in this carburetor is indicated by our guarantee. If it does not suit you, return it within thirty days and we will refund you your money, and ask you your troubles afterward.

BYRNE, KINGSTON & CO., Kokomo, Ind., U.S.A.

The Consolidation Metz Factories Best and Fastest in the



The world renowned Metz motor cycle has attained the highest standard of perfection possible. Its up-to-date features that predominate over every other machine puts it in a class by itself. For speed durability, appearance and perfection in every detail, it cannot be appreached.

Its double frame never breaks. Its original grip control is the only perfect grip control in use. Its method of lubrication, its arrangement of tanks, batteries, coil and other accessories gives the Metz that natty appearance foreign to others.

The Metz holds the hill climbing record, winning over all competitors at Prospect Hill, Waltham, Mass., August 8th. It also made the best average in the New York and Waltham Endurance run.

Manufactured by the American Motor Company, under the personal supervision of Charles H. Metz.

Agents Get in Line

AMERICAN MO-

BROCKTON,

of the Marsh and the Give Agents the Motor Cycles World

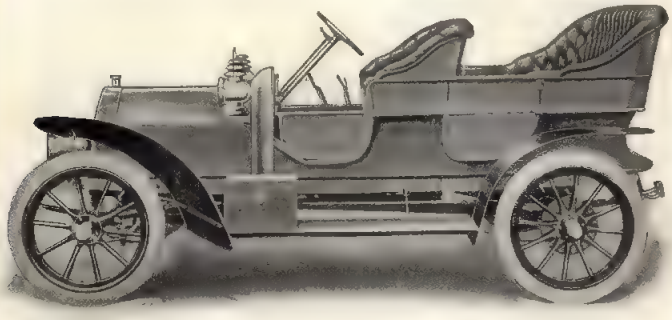
World's records were established by the Marsh Motor Cycle at Charles River Park track, August 19th, single cylinder machine doing one mile in 1:03⅘ seconds, flying start; September 9th, five miles standing start in 5:50. This shows what the Marsh can do when given a fair chance in competition.

The Marsh is the fastest, most reliable belt drive motor cycle on the market, and has fewest parts in its construction.

The Marsh catalogue, the handsomest ever printed, gives full description and specifications.

Agents Get in Line

TOR COMPANY
MASSACHUSETTS



OLDSMOBILE
MODEL S

Following our general announcement of last month, we here set forth in detail the leading features of our Four-cylinder Touring Car.

In general appearance this car is strictly up-to-date. The front axle has been placed well forward under the radiator, giving a wheel base of 106 inches. The standard tread is 55 inches, but either 52-inch or 58-inch tread will be furnished to order. The general design of the car is such that the tendency to stir up dust when running is very small. Weight of car 2200 pounds.

PRICE, $2250

MOTOR: The car is equipped with a four-cylinder vertical water-cooled motor, developing 24 to 26 H. P. Cylinder, 4½ inch bore by 4¾ inch stroke. Pistons are carefully grounded, and "run in" with a belt to insure accurate fit. All the cylinders, pistons and rings are made from the best grade of cast iron from our own foundry. An exceptionally silent muffler is arranged longitudinally beneath the side of the car.

VALVES: The valves are mechanically operated and easily adjusted. The fly wheel is carefully marked, and an index is placed on the crank case so that the valves may be quickly and accurately timed. All bearings are of generous proportion, and quarter boxes are of babbitt lined bronze. The cylinders are cooled by means of water circulated by a gear pump. The radiator used is one of our own design, with a flat tube construction. A fan placed just behind the radiator aids in cooling the motor when the machine is standing still.

CRANK CASE: The crank case is of aluminum. The lower half may be removed without disturbing the bearings, which are hung from the upper half of the case. The crank shaft, connecting rods and pistons can, therefore, be very easily examined or removed without disturbing the hanging of the motor.

OLDSMOBILE

FRAME: A pressed steel frame of channel section is used. In addition to the main frame, a sub-frame is provided which supports the motor and radiator. A portion of the dust pan which runs under the car is riveted between the outside and inside members, and gives a pronounced bracing effect A portion of the dust pan is removable, so that the motor may be very easily examined, yet at the same time it is firmly fastened when in place and absolutely prevents the dust, mud and water from reaching the working parts of the mechanism. Both engine and transmission are aligned upon the sub-frame, and all working parts may be removed without disturbing the hanging of the crank, or transmission cases.

TRANSMISSION: The transmission is of the sliding gear type, having three speeds forward and one reverse. All the gears are made of special high carbon steel, tempered and hardened. **The control is of the selective type, all changes being made with one lever.**

The clutch is of the "dish pan" or cone type, and is provided with a simple spring device whereby the load may be thrown on the motor gradually, thus doing away with any jerking motion when starting. The clutch may be thrown out by foot lever, and also by emergency brake lever.

CONTROL: Steering is accomplished through a worm and nut mechanism. The nut has a large wearing surface, so lubricated that same may be easily replaced at any time. The spark and throttle levers are placed upon the steering post, and just beneath and at the right-hand side of a 16-inch oval-rim steering wheel. An accellerator pedal is also arranged in such a way that it may be used with ease when it is desired to instantly increase the speed for a short interval.

BRAKE: There are two brakes; one, operated by a pedal control, acting on the cardon shaft, just back of the transmission case; the other operated by a hand lever, which "sets up" the emergency toggle joint brake upon the rear wheels. Application of this latter brake throws out clutch, disconnecting transmission from motor.

AXLES: The front axle is of our own special design, and is built of 2-inch tubing, having a ¼-inch wall. The steering connections have special large bearings, all these bearings being equipped with "T" handled grease cups, and protected by leather dust caps. The steering connections and gear links are adjustable so that the wheels may be easily lined up at any time Axle is dropped in center to protect the fly wheel and other parts beneath the car. The rear axle is equipped with Timken roller bearings throughout.

DRIVE: Bevel gear drive is used, having a ratio of 3 to 1. Ratio of 3½ to 1 or 4 to 1 will be furnished on special order. We do not recommend any lower than 3½ to 1.

SPRINGS: Large, half-elliptical springs, made of the best stock obtainable are used, the front being 36 inches long, and rear 48 inches.

MISCELLANEOUS: The wheels have ten spokes in front, and 12 in the rear, and are equipped with 32-inch by 3½-inch tires. Four-inch tires for extraordinary service can be had on special order. Running board and mud guard irons, instead of being riveted on are drawn into taper sockets upon side members of frame and are easily removable. The lamp brackets are adjustable for different sizes of lamps; dash and tail light brackets are supplied. Luggage rack is equipped at rear on special order. A tubular horn, two acetylene head lights, generator and two oil lamps are furnished with each car. A box carried on running board contains storage and dry cells, tools and compartment for waste and small repairs.

OLDS MOTOR WORKS
LANSING, MICH., U. S. A.

READ AND LET THESE FACTS SOAK IN

CUT COUPON HERE

CATALOGUE COUPON

OLDS MOTOR WORKS

LANSING, MICH

Kindly send me information regarding cars checked. I am interested.

Mode B . . Delivery Cars.....
Model S Passenger
N Model L Traffic Cars .

Name

Address

CUT COUPON HERE

CALENDAR COUPON

OLDS MOTOR WORKS

LANSING, MICH.

Enclosed find 10 cents, for which send your Art Calendar (free from advertising and suitable for framing) for 1906. Design by George Gibbs.

N

Name

Address

CUT COUPON HERE

MOTOR TALK COUPON

OLDS MOTOR WORKS

LANSING, MICH

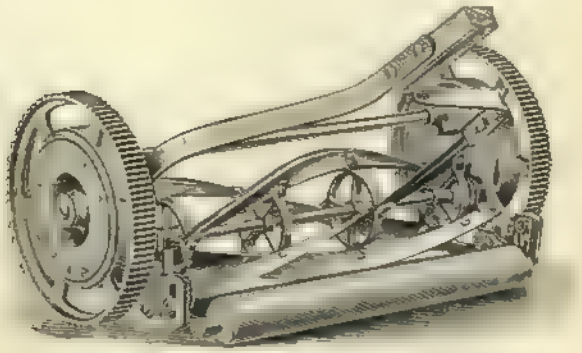
Enclosed find 25 cents, for which have MOTOR TALK, a magazine devoted to automobiling, sent to me for 1 year.

N

Name

Address

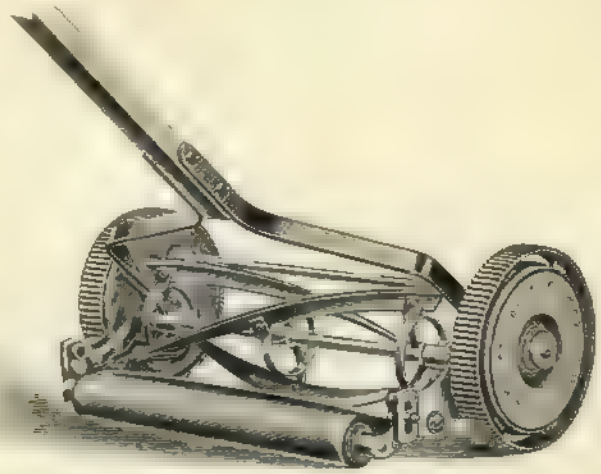
Lawn Mowers.



Peerless, Ball Bearing, Open Cylinder.

Width of Cut, Inches,	14	16	18	20
Code	Apresador.	Apresen.	Apresiado.	Apresurar
Diameter of Drive Wheels, In.,	10	10	10	10
Number of Knives on Cylinder,	4	4	4	4
Weight Each, lbs.,	45	50	52	55
Each,	$8.00	8.50	9.00	9.50

One in a Case



California Clipper, Plain, Open Cylinder.

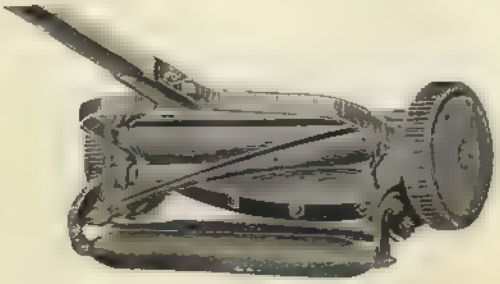
Width of Cut, Inches,	10	12	14	16
Code	Apricara.	Aprienasi.	Apricatos.	Apricomos.
Diameter of Drive Wheels, In.,	8	8	8	8
Number of Knives on Cylinder,	3	3	3	3
Weight Each, lbs.,	35	36	38	40
Each,	$3.45	3.60	3.75	3.90

California Clipper, Ball Bearing, Open Cylinder.

Width of Cut, Inches,	10	12	14	16
Code	Aprecujar.	Aprecujo.	Apriamole.	Apricable
Diameter of Drive Wheels, In.,	8	8	8	8
Number of Knives on Cylinder,	3	3	3	3
Weight Each, lbs.,	35	36	38	40
Each,	$4.50	4.70	4.85	5.15

One in a Case.

Lawn Mowers.



B. & H. Solid Wiper.

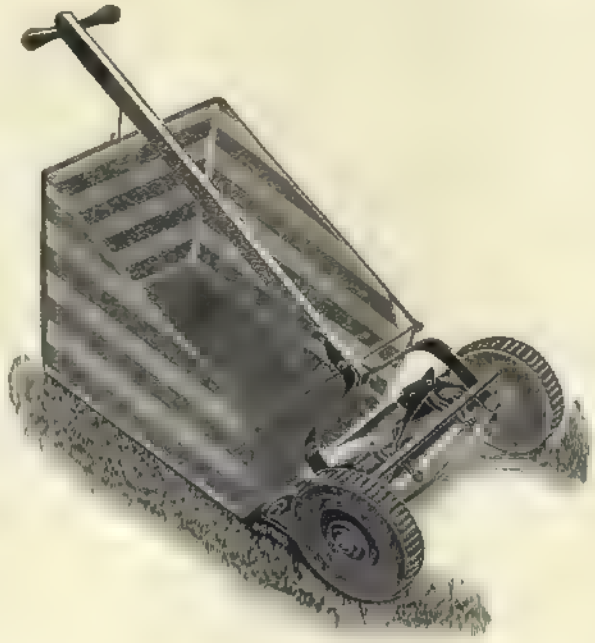
Width of Cut, In.,	10	12	14	16	18
Code.	Apricity.	Apricorum.	Apricuits.	Apricuis.	Apricitas.
Diameter of Drive Wheels, In.,	7	7	7	7	7
Number of Knives on Cylinder,	3	3	3	3	3
Weight Each, lbs.,	25	28	36	38	41
Each,	$6.00	7.00	8.00	9.00	10.00

The Material used in this Mower is of the Highest Grade and Quality. The Cutting Knives are made of Extra Quality Cast Steel, Hardened and Tempered in Oil, and are Self-Sharpening.

Horse Lawn Mowers.

We carry special Horse Mowers of High Grade for Large Lawns and Golf Links.
Write for Special Catalogue and Prices.

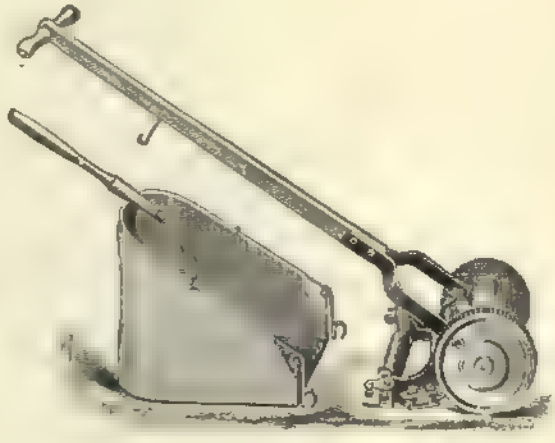
Grass Catchers.



Peerless.

Made of Heavy Canvas, with Steel Bottom

	Per Dozen
Code Apridag. **No. 1**—Fits 10 to 16 In. Mowers, Weight, 18 lbs. Per Dozen.	$12.00
Code Aprigek. **No. 2**—Fits 16 to 20 In. Mowers, Weight, 22 lbs. Per Dozen.	12.00



California.

Made of Heavy Duck, with Galvanized Iron Frame.

	Per Dozen
Code Apriwind. **No. 10**—Fits 12 to 18 In. Mowers, Weight, 34 lbs. Per Dozen.	$17.00
Code Aprizon. **No. 20**—Fits 18 to 22 In. Mowers, Weight, 41 lbs. Per Dozen.	20.00

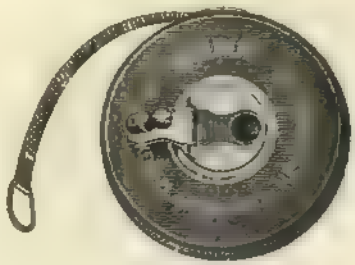
Measuring Tapes

K. & E.—STEEL

Cornell

Steel Tape ⅜ in. Wide, Stout Bent Leather Case, Patent Center, Long Swiveling Flush Folding Handle, opened by pushing pin from opposite side; Nickel Plated Mountings, Graduations in 12ths, begin at outside of end Ring.

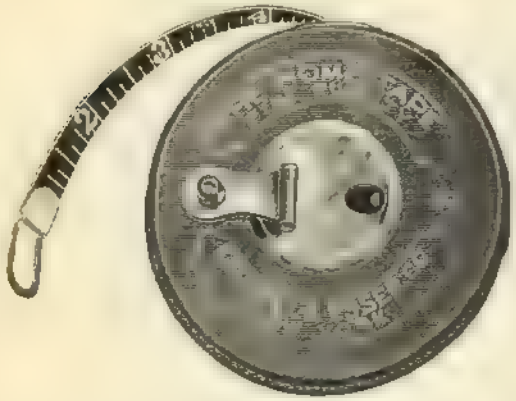
No.	7252T	7255T
Length, feet	50	100
Each	$6.65	11 85



Liliput

Steel Tape ¼ in. Wide, Stout Bent Leather Case, Patent Center, Long Swiveling Flush Folding Handle, opened by pushing pin from opposite side; Nickel Plated Mountings, Graduations in 12ths and 16ths, Graduations begin at outside end of Ring

No.	7270T	7272T
Length, Feet	25	50
Each	$3.65	4.45



The Home

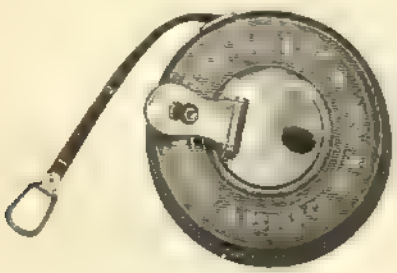
Steel Tape ⅜ in. Wide, Stout Bent Leather Case, Large Center, Long Folding Handle, Nickel Plated Mountings, Graduations in 12ths, beginning at outside of the Ring.

No.	7350T	7352T	7354T	7355T
Length, Feet	25	50	75	100
Each	$3.20	3.90	5.10	6.60

Armor

Steel Tape ⅜ in. Wide, Strong Steel Case, Large Center, Folding Handle, Case and Mountings Nickel Plated, Graduations in 12ths, beginning at outside end of Ring.

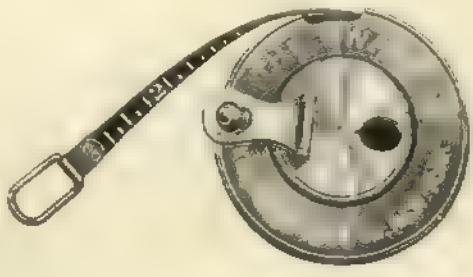
No.	7370T	7372T	7374T	7375T
Length, Feet	25	50	75	100
Each	$2.70	3.30	4.35	5.60



Midget

Steel Tape ¼ in. Wide, Stout Bent Leather Case, Large Center, Long Folding Handle, Nickel Plated Mountings, Graduations in 12ths, beginning at outside end of Ring.

No.	7360T	7362T
Length, Feet	25	50
Each	$2.90	3.40



Dwarf

Steel Tape ¼ in. Wide, Strong Steel Case, Large Center, Long Folding Handle, Case and Mountings Nickel Plated, Graduations in 12ths, beginning at outside end of Ring.

No.	7380T	7382T
Length, Feet	25	50
Each	$2.40	2.90

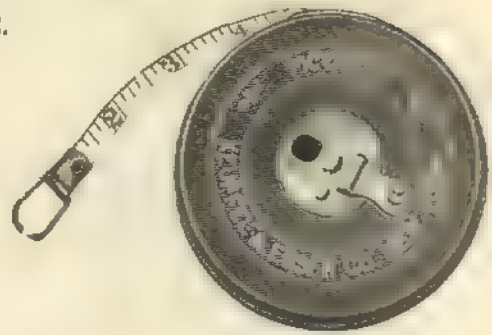
Measuring Tapes

K. & E.

New Mechanics—Steel

Steel Tape ⅜ in. Wide, Nickel Plated Metal Case, Large Center with Long Folding Handle; Graduations in Inches to 16ths.

No.	7761	7762
Length, Feet	12	20
Per Doz.	$17.40	23.40



Piccolo—Metallic

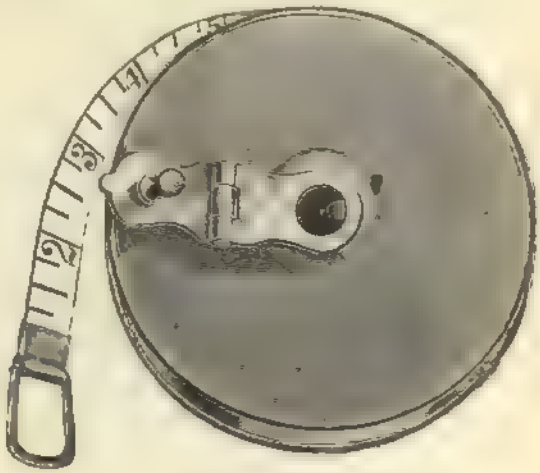
Metallic Tape ⅜ in. Wide, Stout Bent Leather Case, Patent Improved Center, Long Flush Folding Handle, opened by pushing from opposite side; Nickel Plated Mountings, Reinforced Ends; Graduations in 12ths.

No.	7480T	7482T
Length, Feet	25	50
Each	$1.55	2.00

Dartmouth—Metallic

Metallic Tape ⅝ in. Wide, Stout Bent Leather Case, Long Folding Handle, Nickel Plated Mountings, Leather Reinforced End, Graduations in 12ths, beginning at outside end of Ring.

No.	7442T	7444T	7445T
Length, Feet	50	75	100
Each	$2.45	3.05	3.80

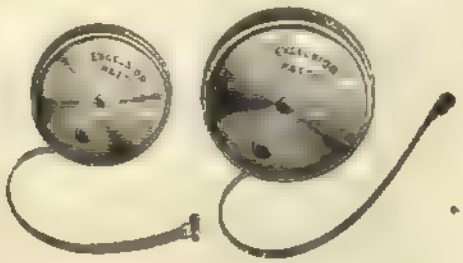


Asses Skin—Cotton

Cotton Line ½ in. Wide, Enameled Steel Case, Seamless Brass Rim, Brass Handle and Mountings.

No.	7900	7902	7904	7905
Length, Feet	25	50	75	100
Per Doz.	$3.75	5.00	7.50	9.00

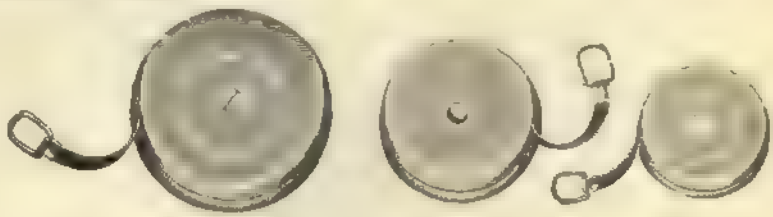
POCKET TAPES



Excelsior

Steel Tapes in German Silver Case, Spring Winding, with Stop.

No.	7690T	7692T
Length Feet	3	6
Per Doz.	$12 00	16.80



Tip-Top

Nickel Plated Brass Case, Spring Winding.

No.		Each
7710T	Steel Tape ¼ in Wide, 36 in. Long	$0 55
7711T	Steel Tape ¼ in Wide, 60 in Long	.70
7720T	Linen Tape ¼ in. Wide, 36 in Long	30
7721T	Linen Tape ¼ in. Wide, 60 in. Long	.35

Porcelain Name Plates.

Code Brachyuros. Each
No. 14—1¾x3 In. $0.40
Weight, 1½ oz. Each.

Code Brachyops. Each
No. 13—1¼x5 In. . . . $0.40
Weight, 1½ oz. Each.

Code Brachyoura. Each
No. 1—1½x7 In. $0.50
Weight, 3 oz. Each.

Code Brachys Each
No. 2—1½x7 In. $0.50
Weight, 3 oz. Each

Code Brachysre. Each
No. 3—1½x7 In. $0.50
Weight, 3 oz. Each.

Code Brachytele Each
No. 4—1½x7 In. . . . $0.50
Weight, 3 oz. Each.

Code Brachyuro. Each
No. 5—1½x7 In. $0.50
Weight, 3 oz. Each.

Code Bracilis. Each
No. 6—1½x7 In. . . . $0.50
Weight, 3 oz. Each

Code Brachybo. Each
No. 7—1½x7 In. $0.50
Weight, 3 oz. Each.

Code Brachyops Each
No. 8—1½x7 In. . . . $0.50
Weight, 3 oz. Each

Code Brachyops. Each
No. 10—1½x7 In. $0.50
Weight, 3 oz. Each.

Code Bracmanico. Each
No. 9—1½x7 In. $0.50
Weight, 3 oz Each

Code Bracmens. Each
No. 11—1¼x5 In. $0.50
Weight, 1½ oz. Each.

Code Brachyide. Each
No. 12—1¼x5 In. $0.50
Weight, 1½ oz. Each.

Porcelain Name Plates.

Code Brachvogel
No. 16—2½x6 In., ... Each $0.75
Weight, 3 oz. Each.

Code Brucoydame
No. 15—2½x6 In . . . . Each $0.75
Weight, 3 oz. Each.

Code Brachyllar
No. 18—2¾x7½ In . . Each $1.00
Weight, 4 oz. Each.

Code Brachyolec
No. 17—2¾x7½ In . Each $1.00
Weight, 4 oz. Each.

CENTRIFUGAL PUMPS.

VERTICAL SUBMERGED.

FIG. 1247

SIDE SUCTION.

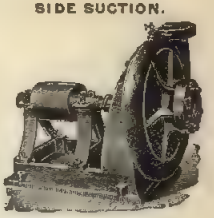


FIG. 1248.

Vertical Submerged Centrifugal Pumps.

Number.	Suction, Inches.	Discharge, Inches.	Capacity, Gallons.	Pulley, Inches.	Couplings Bored for, Shaft, Inches.	Price, Iron, Each.	Price, Brass, Each.
1¼	2	1½	70	5 x 5	¾	40.00	70.00
1½	2	2	90	6 x 5	1	50.00	90.00
2	3	2	120	6 x 6	1⅛	65.00	110.00
2½	3½	2½	185	7 x 6	1⅛	80.00	135.00
3	4	3	265	7 x 8	1¼	95.00	150.00
3½	4½	3½	360	8 x 8	1⅜	103.00	200.00
4	5	4	470	10 x 8	1½	110.00	240.00
5	6	5	735	10 x 10	1⅝	140.00	315.00
6	8	6	1060	14 x 12	1¾	170.00	360.00
8	10	8	2000	20 x 12	2⅛	265.00	
10	12	10	3000	24 x 12	2½	330.00	
12	15	12	4300	Special	Special	420.00	
15	18	15	7000	Special	Special	600.00	
18	20	18	10000	Special	Special	950.00	

Side Suction Centrifugal Pumps.

Number.	Suction, Inches.	Discharge, Inches.	Capacity, Gallons.	Pulley, Inches.	Price, Iron, Each.	Price, Brass, Each.	Price, Brass Fitted, Extra, Each.
1	2	1	70	5 x 5	45.00	85.00	15.00
1½	2	2	90	6 x 5	60.00	100.00	18.00
2	3	2	120	6 x 6	75.00	125.00	22.00
2½	3½	2½	185	7 x 6	90.00	150.00	27.00
3	4	3	265	7 x 8	110.00	175.00	30.00
3½	4½	3½	360	8 x 8	120.00	230.00	40.00
4	5	4	470	10 x 8	130.00	275.00	48.00
5	6	5	735	10 x 10	165.00	350.00	72.00
6	8	6	1060	14 x 12	200.00	410.00	108.00
8	10	8	2000	20 x 12	310.00		
10	12	10	3000	24 x 12	395.00		
12	15	12	4300	Special	500.00		
15	18	15	7000	Special	850.00		
18	20	18	10000	Special	1300.00		

Can be furnished with hand primer when so ordered.

CENTRIFUGAL PUMPS.

HORIZONTAL SIDE SUCTION, CONNECTED TO ENGINE.

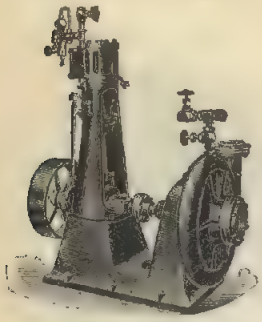


FIG. 1249

SAND AND DREDGING PUMP.

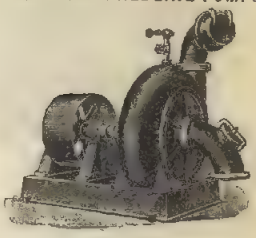


FIG. 1250.

Horizontal Side Suction Pumps Connected to Engine.

Number.	Suction, Inches.	Discharge, Inches.	Capacity, Gallons.	For Elevations, Feet.	ENGINE. Cylinder, Inches.	ENGINE. Stroke, Inches.
2	3	2	120	25	3½	3½
2½	3½	2½	185	25	3⅝	3½
3	4	3	265	20	3⅝	3½
3	4	3	265	25	4	4½
3½	4½	3½	360	25	4	4½
4	5	4	470	20	4	4½
4	5	4	470	25	4½	4½
5	6	5	735	25	5	6
6	8	6	1060	20	5½	7
6	8	6	1060	25	6½	7
8	10	8	2000	20	7	8
8	10	8	2000	25	8	8
10	12	10	3000	20	9	8

Sand and Dredging Pumps.

Number.	Suction and Discharge, Inches.	Cubic Yards of Solids per Hour, Per Cent of Solids 10%	15%	20%	Horse Power for Each 10 Feet of Elevation.	Diameter of Solids Pump Will Pass, Inches.	Price, Each.
4	4	14	21	28	4	2	210.00
6	6	30	45	60	8	4½	300.00
8	8	60	90	120	15	6	475.00
10	10	90	135	180	25	8	600.00
12	12	125	190	250	30	10	850.00
15	15	210	315	420	50	10	1775.00
18	18	300	450	600	70	10	2000.00

Laib Co.
1175
Louisville Ky

PLANES.

Wood Bottom Adjustable Planes.

SMOOTH PLANE.

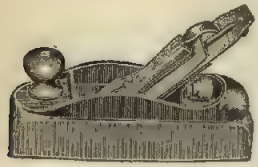


FIG. 3365.

HANDLED SMOOTH PLANE.

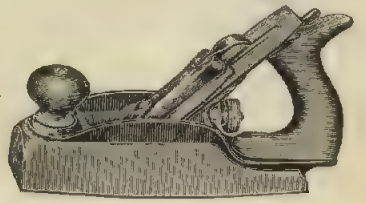


FIG. 3366.

Length.....inches	7	8	9	8	9	10	Jenny 13
Cutter.....inches	1¾	1¾	1¾	2	2	2⅜	2⅝
Price, Smooth Planes.....each	2.00	2.00	2.00	2.00	.....	.....	.....
Price, Handled Smooth Planes.....each	.....	.....	.....	.....	2.50	2.75	3.00

JACK AND FORE PLANES

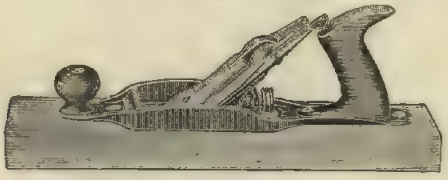


FIG. 3367

Length.....inches	15	15	15	18	20
Cutter.....inches	2	2¼	2½	2⅝	2⅝
Price, Jack Planes.....each	2.25	2.50	2.50	.....	.....
Price, Fore Planes.....each	.....	.....	.....	2.75	2.75

Iron Planes.

ADJUSTABLE BLOCK PLANE.

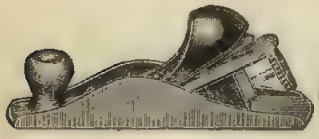


FIG. 3368.

BLOCK PLANE, ROSEWOOD HANDLE.

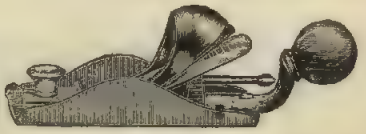


FIG. 3369.

Length.....inches	7½	6	7
Cutter.....inches	1¾	1¾	1¾
Price, Adjustable Block Planes.....each	.85	.....	.....
Price, Block Planes; Rosewood Handles.....each	.....	1.75	1.85

Laib & 1176 Louisville Ky

PLANES.

Iron Planes.

HANDLED SMOOTH PLANE.

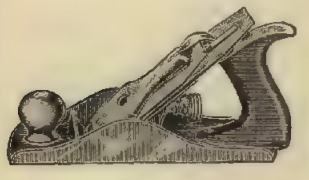


FIG. 3370.

JACK PLANE.

FIG. 3371.

Handled Smooth Planes.

Length.....inches	8	9	9½	10
Cutter.....inches	1¾	2	2⅛	2⅜
Price, Handled Smooth Planes.....each	3.00	3.25	3.60	3.75

Jack Planes.

Length.....inches	14	14	15	15
Cutter.....inches	2	2⅛	2⅛	2⅜
Price, Jack Planes.....each	3.75	4.00	4.25	4.50

FORE AND JOINTER PLANES.

FIG. 3372.

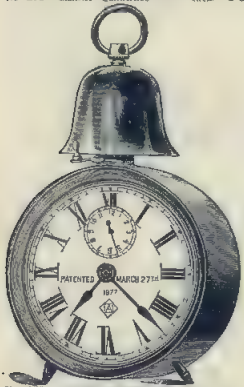
Length.....inches	18	22	24
Cutter.....inches	2⅜	2⅜	2⅜
Price, Fore Planes.....each	4.75	.....	.....
Price, Jointer Planes.....each	.....	5.50	6.50

NICKEL ALARM CLOCKS.

WAKE-UP ALARM—Extra.
Registered. Patent Applied For.
1 Day, Nickel Alarm
4 in. Dial Height 6¼ in.
No 878 Case Lots of 50 . . . . . each, $1 26
No 879 Smaller Quantities . . . . each 1 36

No. 880. PIRATE. Each, $1 30
1 Day, Nickel Alarm
4 in Dial Height 6¼ in
Case Lots of 50 Clocks . . . . . each, $1 26

No. 881. SUNRISE. Each, $1.38
1 Day, Time, Alarm, Nickel Case
In Lots of 50. . . . . each, $1.32



No. 882. 4-INCH BEADILLE. Each, $1.80
1 Day, Time and Alarm
Dial 4 in Finished in Nickel
Case Lots of 50 Clocks . . . . each $1 70

No. 883. WASP ALARM. Each, $2.00
Nickel. Long Alarm
1 Day, Time, Alarm
2 in Dial Beveled Glass. Height 3⅜ in

No. 884. MONITOR. $1.48
Nickel, 1 Day, Time, Alarm, Calendar

No. 885. 5-410 Each $1 70
1 Day, Lever Time Alarm
4½ in. Dial
Lots of 50 Clocks . . . . each $1 58
SETH THOMAS

No. 886. BEACON. Each, $1 32
1 Day, Alarm Dial 4 in
Nickel

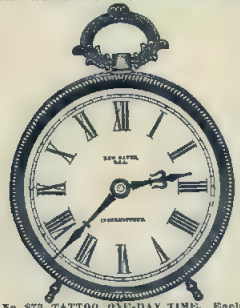
No. 887. AMERICA. Each, $1 10
Dial 4 in. Nickel Plated Case
Alarm Dial in Front
Lots of 50 . . . . . each $1 05
No. 888 With Luminous Dial. . . . each 1 40

No. 869. WESTERN LONG ALARM, SHUT-OFF. $1.50

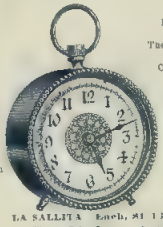
No. 870. BEE. $2 40
Bee Alarm Finished in Nickel, Beveled Glass
1 Day Time

No. 871. BEE. $1.50
1 Day Time
Dial 2 in
Finished in Gilt, Nickel or Silver Beveled Glass
Winds by turning the Back

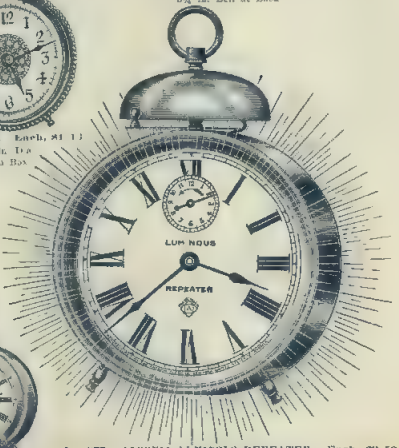
No. 872. SPASMODIC. $2.25
Nickel
Long Alarm, with Intermissions. Large Bell on the Back
1 Day, Time, Alarm 4¾ in. Dial. Height 5⅝ in.
The Alarm will ring half a minute, and be silent half a minute, alternately for 15 minutes
Can be stopped at pleasure. Attached Keys and Hand Sets
3⅝ in. Bell at Back



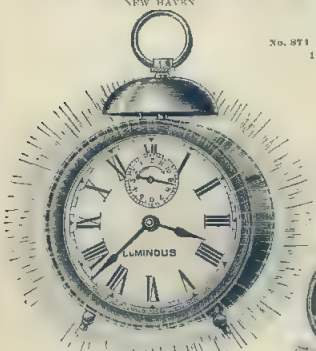
No. 873. TATTOO, ONE-DAY TIME. Each, $2 34
It Rings the Fire Alarm every few Seconds for Fifteen Minutes.
The Alarm can be Stopped at will by means of Patent Switch
NEW HAVEN



No. 874. LA SALLITA. Each, $1 13
1 Day Time 2 in. Dial
Put up in Tin Box



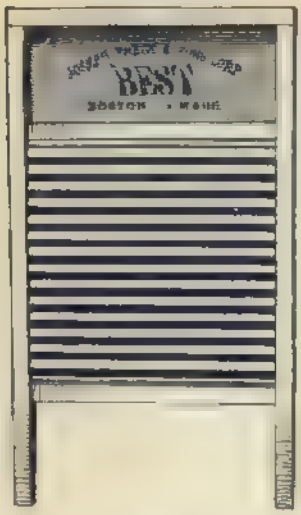
No. 877. ANSONIA LUMINOUS REPEATER. Each, $2 50
1 Day Time and Alarm
3 in. Luminous Dial. Finished in Nicke.
The Alarm can be set at any Hour (Gives Intermitting Duration 25 minutes or Long Alarm 45 minutes continuously) by Switch on Back
No. 877½ Repeater without Luminous Dial $2 13



No. 875. LUMINOUS PIRATE. $1.60
1 Day Time, Alarm. 4 in. Luminous Dial.
ANSONIA
No. 875½ Western Luminous.....$1.40

No. 876. PONY. $1.58
Nickel Plated
1 Day, Lever, Time
Second Hand. 2 in. Dial.
SETH THOMAS

WASHBOARDS.



Best.

Joseph Breck & Sons' "Best."

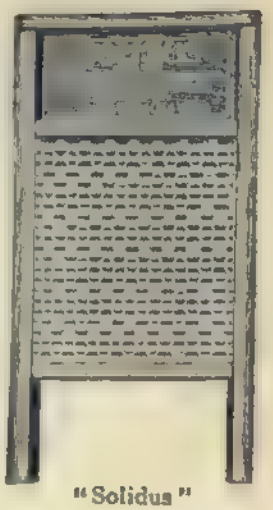
This board is made of the same weight of zinc, size of crimp and dimensions as the E. Murdock celebrated "Best."

List price, per doz. $5.00
Our net price, each 25
Packed 1 doz. in bundle.

"Solidus" Washboards

This glass washboard will not wear out, rust or flatten, will stand hot or cold water, is equally good for coarse or delicate fabrics.

Mfrs. price, per doz. $6.50
Our net price, each 40
Packed ½ doz. in bundle.



"Solidus"

Peerless.

"Peerless."

Spring protector, fine crimp.

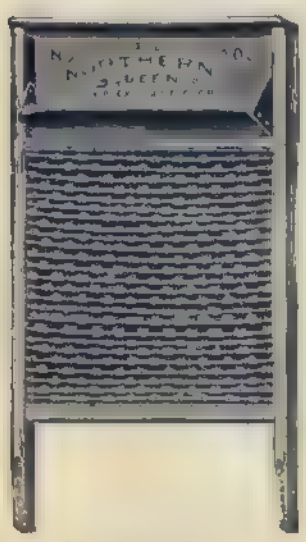
Mfrs. price, per doz. $5.65
Our net price, each 35
Packed ½ doz. in bundle.

"North Star."

Solid zinc.

Mfrs. price, per doz. $6.20
Our net price, each 4
Packed ½ doz. in bundle.

North Star.



Northern Queen.

"Northern Queen."

Perforated, duplex soap box protector.

Mfrs. price, per doz. $5.60
Our net price, each 30
Packed ½ doz. in box

"Universal."

Protector.

Mfrs. price, per doz. $5.00
Our net price, each 35
Packed ½ doz. in box.

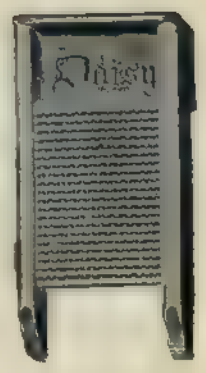
Universal.

WASHBOARDS.

Tidal Wave.

	Mfrs. price.	Our net price.
"Tidal Wave," perforated soap box prot.,	per doz., $5.00	each, $0.30
"Brass King"	" 6.00	" .35
"Flyer"	" 3.00	" .20
"Breck's Perforated"	" 5.00	" .25
"Murdock Best," corrugated	" 5.00	" .30
"Seal Star," solid zinc	" 5.00	" .30
"Little Daisy," ½ size, fine crimp	" 3.00	" .15
"Breck's Diamond," ½ size, fine crimp	" 1.30	" .10

Packed ½ doz. in bundle



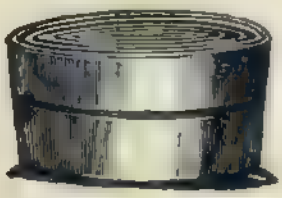
Little Daisy.

TUBS AND KEELERS.

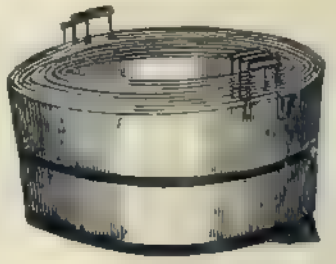
Electric hoop cedar tubs.

		Mfrs. price.	Our net price.
No. 1.	Electric hoop cedar tub	per doz., $17.00	each, $1.65
" 2.	" " " "	" " 14.00	" " 1.35

For Fibre Tubs see Indurated Fibre Ware, page 343.



Nest of Keelers.



Nest of Tubs.

		Mfrs. price.	Our net price.
Nest of 5.	Com., painted, per doz. nests,	$14.00,	per nest, $1.00
No. 1.	" " "	6.20	each, .35
" 2.	" " "	5.60	" .30
" 3.	" " "	5.00	" .25
" 4.	" " "	3.50	" .20
" 5.	" " "	2.50	" .15
Nest of 5.	Best, oiled, per doz. nests,	15.20	per nest, 1.10
No. 1.	" " "	6.20	each, .35
" 2.	" " "	5.60	" .30
" 3.	" " "	5.00	" .25
" 4.	" " "	3.50	" .20
" 5.	" " "	2.50	" .15

		Mfrs. price.	Our net price.
Nest of 2.	Com., painted, per doz. nests,	$18.00,	per nest, $1.40
" " 3.	" " " "	26.00	" 1.90
" " 4.	" " " "	38.00	" 2.90
No. 1.	" " "	11.60	each, .80
" 2.	" " "	9.80	" .65
" 3.	" " "	8.00	" .50
Nest of 2.	Best, oiled, per doz. nests,	19.00	per nest, 1.45
" " 3.	" " " "	27.00	" 1.95
" " 4.	" " " "	38.00	" 3.00
No. 0.	" " "	15.20	each, 1.20
" 1.	" " "	11.60	" .85
" 2.	" " "	9.80	" .70
" 3.	" " "	8.00	" .35

BRISTOL'S HIGH RANGE RECORDING THERMOMETERS.

BULB PLAIN, 8-INCH CHART.

For working ranges to 800 Degrees Fahrenheit.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
6200	626	20° Fahrenheit.	40 to 500° Fahr.	40 to 600° Fahr.	24 hour	$70.00	Uniform Graduations.
6201	618	20° "	40 " 650° "	40 " 800° "	24 "	70.00	
6202	619	0° Centigrade.	0 " 350° Cent.	0 " 350° Cent.	24 "	70.00	

Above prices include with each Thermometer, Padlock and Key, One Hundred Charts and a Bottle of Special Recording Instrument Ink.

Electric Alarm Attachment (extra net) $10.00
Special Chart, Graduated to Order (extra net) 15.00
Additional Charts, per hundred ..... .75
Special Recording Gage Ink (in bottles). One Ounce, 25 cents; Four Ounces, 60 cents; Half Pint $1.00; Pint, $2.00; Quart, $4.00.

Recording Thermometers with Special Ranges made to order.

BRISTOL'S RECORDING THERMOMETERS.

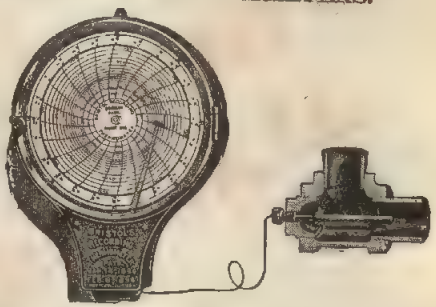


Fig. 538

For closed spaces under pressure or vacuum.

For working ranges of temperature between 100 and 500 degree Fahrenheit, as feed water pipes, tanks, vats, etc. The flexible connecting tube passes through a threaded plug permitting the bulb to be inserted through a small hole into the pipe.

BULB WITH SCREW-THREAD, 8-INCH CHART.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
6100	618	10° Fahr., above 50°	50 to 155° Fahr.	32 to 175° Fahr.	12 hour	$60.00	Increasing Graduations.
6101	616	5° " " 100°	60 " 180° "	32 " 200° "	7 day	60.00	
6102	611	5° " " 100°	60 " 180° "	32 " 200° "	24 hour	60.00	
6103	607	5° " " 150°	80 " 212° "	32 " 230° "	24 "	60.00	
6104	623	5° " " 190°	100 " 250° "	32 " 270° "	7 day	60.00	
6105	600	5° " " 130°	100 " 250° "	32 " 270° "	24 hour	60.00	
6106	602	5° " " 270°	120 " 280° "	32 " 300° "	24 "	60.00	
6107	606	5° " " 220°	130 " 280° "	32 " 300° "	1 "	60.00	
6108	603	5° " " 240°	150 " 310° "	32 " 330° "	24 "	60.00	
6109	609	5° " " 300°	180 " 380° "	32 " 400° "	24 "	60.00	
6110	605	5° " " 400°	210 " 480° "	32 " 500° "	24 "	60.00	
6111	617	2° Cent. " 60°	20 " 100° Cent.	0 " 110° Cent.	24 "	60.00	
6112	614	2° Reau. " 60°	20 " 88° Reau.	0 " 88° Reau.	24 "	60.00	

Above prices include with each Thermometer, Padlock and Key, One Hundred Charts and Bottle of Special Recording Ink.

Electric Alarm Attachment (extra net) $10.00
Special Chart Graduated to order (extra net) 20.00
Special Union Connection for Bulb (extra net), ¾ inch 2.50, 1 " 3.00

BRISTOL'S
HIGH-RANGE RECORDING THERMOMETERS.

BULB WITH SCREW THREAD.

8-INCH CHART.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
6000	620	20° Fahr.	40 to 600° Fahr.	40 to 600° Fahr.	24 hour	$70 00	Uniform Graduations
6001	618	20° "	40 " 650° "	40 " 800° Fahr.	24 "	70.00	" "
6002	619	10° Cent.	0 " 300° Cent.	0 " 350 Cent.	24 "	70.00	" "

Above prices include with each Thermometer, Padlock and Key, one hundred Charts and a bottle of special Recording Instrument Ink.

Electric Alarm Attachment (extra Net) $10 00
Special Chart, graduated to order (extra Net) 15 00
Additional Charts, per hundred 75
Special Recording Gage Ink (in bottles) one ounce, 25 cents; four ounces, 60 cents; half pint, $1.00.
pint, $2.00; quart 4 00

RECORDING THERMOMETERS WITH SPECIAL RANGES MADE TO ORDER.

Fig. 837.

BRISTOL'S SELF-CONTAINED RECORDING THERMOMETERS.

FOR ATMOSPHERIC TEMPERATURES, AND RANGES TO 250 DEGREES FAHRENHEIT.

Makes a continuous record of temperature upon a chart revolved once in one week or one day.

Complete instrument located at point where temperature is to be recorded. Handsomely finished in polished nickel plate. Can be suspended conveniently in any room of cold-storage plants, factories, hospitals, hotels and private dwellings. Where it is important that temperature be constantly maintained, instruments will pay for themselves in a short time.

Finished in nickel-plate and fully guaranteed.

8-INCH CHART.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
6900	700	2° Fahr. Un'f'm	30 to 110° Fahr.	30 to 110° Fahr.	7 day	$60.00	Self-Contained Type
6901	701	5° " "	0 " 130° "	0 " 130° "	24 hour	60 00	" " "

Above prices include with each Thermometer, Padlock and Key, one hundred Charts and a bottle of Special Recording Instrument Ink.

Electric Alarm Attachment (extra Net) $10 00
Special Chart, graduated to order (extra Net) 15 00
Additional Charts, per hundred 75
Special Recording Gage Ink (in bottles), one ounce, 25 cents; four ounce, 60 cents; half pint, $1.00; pint, $2 00; quart 4.00

Prices upon Volt Meters, Ampere Meters and Watt Meters quoted upon application.

SMITH-COURTNEY CO. RICHMOND, VA.

COLUMBIA FAMILY SCALES.

Black enamel. To weigh 24 pounds by ounces.

Regulated by brass screw on top.

No. 102.

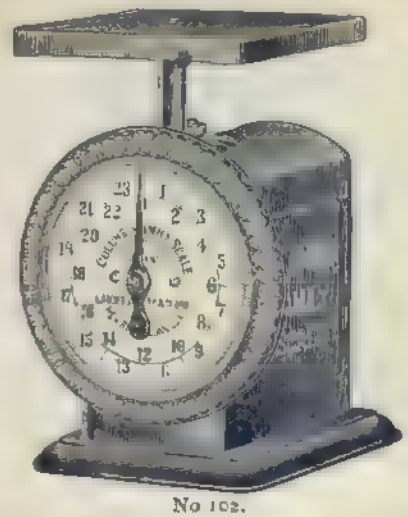
White enameled dial. Square steel top.

Mfrs. price, per doz .	$16.00
Our net price, each . .	1.40

No. 1102.

White enameled dial. Square steel top. Tin Scoop.

Mfrs. price, per doz. . .	$17.50
Our net price, each . .	1.60



No 102.

Brass plated. To weigh 24 pounds by ounces.

Regulated by brass screw on top.

No. 105.

White enameled dial. Square steel top. Brass plated.

Mfrs price, per doz. .	$24.40
Our net price, each .	2.00

No. 1105.

Brass dial. Brass scoop. Square steel top. Brass plated

Mfrs. price, per doz. . .	$31.60
Our net price, each . .	2.50

"THE IDEAL" ICE CREAM FREEZER.

Position for filling.

Position for operating.

Freezer taken apart.

Practically only four parts Simple in construction! Easy in operation! Rapid in results!
The most practical, satisfactory and durable ice cream freezer ever offered for domestic use.

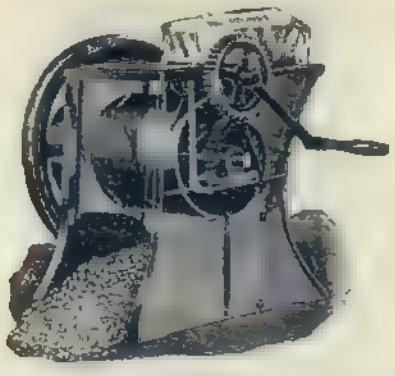
One size only, 4 qt. . . . . Mfrs. price, per doz., $42.00 Our net price, each, $3.50

CHANDLER'S ICE CUTTING MACHINES.

Small, compact, simple, strong and cheap machines which cut the ice into small diamond shaped pieces with the utmost ease and rapidity. Can be attached by screws to any table, counter or shelf, and occupies a space about eight inches square. For iced tea or coffee, or ice cream, it has no equal.

No 1	Mfrs. price.	$3.50
No 2.	" "	5.00
	Our net price	$3.25
	" "	4.75

THE CREASEY ICE BREAKERS.



The Creasey Ice Breakers provide the easiest, quickest and most economical method of reducing large cakes of ice to pieces of usable size.

Their design is right. The ice is broken by picks, drop-forged from the best steel, attached to a heavy revolving drum. These picks are so arranged that but one strikes at a time, thus giving the effect of a continuous cut with the least expenditure of power. The ice is held up by a comb—a plate with spaced teeth—until it is broken fine enough to fall through. Either fine, medium or coarse ice may be obtained by using the proper size comb.

The Creasey Ice Breakers are well built, of good metal, properly distributed. That they are used by the largest ice cream manufacturers, packers and shippers and dairymen in the country, and are well received by the leading dealers in confectioners' and bakers' tools, dairy and hotel supplies, etc., is evidence of their worth.

No.	Description	Size of Cake	Weight	Size Pulleys	Our Net Price
49	For power only	18 x 28	2900 lbs.	24 x 6	$275.00
50	" " "	14 x 28	1180 "	14 x 3⅜	120.00
51	" " "	14 x 18	925 "	14 x 3⅜	96.00
52	For hand and power	14 x 14	910 "	14 x 3⅜	83.00
52 P	" power only	14 x 14	850 "	14 x 3⅜	75.00
52 H	" hand only	14 x 14	880 "		75.00
53	" hand and power	12 x 14	665 "	13 x 3	70.00
53 H	" hand only	12 x 14	635 "		62.50
54	" hand and power	10 x 12	510 "	12 x 2⅜	54.00
54 H	" hand only	10 x 12	450 "		48.00
55	" " "	10 x 10	300 "		35.00
56	" " "	8 x 10	205 "		25.00
57	" " "	8 x 8	180 "		20.00
59	" " "	6 x 8	100 "		18.00

Descriptive Catalogue mailed on application.

ICE CHIPPERS.

For chipping ice, for use in Ice Cream Freezers or for any purpose for which cracked ice may be needed.

Lightning.

The teeth are made of hardened and tempered steel pins, with beveled ends. The guide is opened to permit chipped ice to escape freely.

No. 1. For Family Use . . . . . $0.50 each.

"Crown."

Crown, for family use . . . . . $0.50 each.

If sent by mail, additional for postage, 15 cts. each.

MECHANICAL CHRISTMAS CARDS
Continued.

5983-7¾ Every design has a novel mechanism, and when opened forms a pleasing and surprising effect. Angels, Christmas trees, etc., seen through a frame of holly in the form of a wreath, a bell or a star. Twelve different kinds. Each card in envelope. 1 dozen assorted in box. Size, 8x6¼ in.
Per doz., $0.75

5984-20 Wonderful construction and mechanical effect, representing "The Visit of the Wise Men to the Holy Babe," "Christmas Angels Bringing Presents to Children," "Santa Claus with Sleigh and Reindeer," etc., etc. Six different styles, each in box. Average size, 7x8 in. ½ dozen in pkg. Per doz., $2.00

NEW YEAR CHECK BOOKS.

5986-12¾ Book contains six up-to-date post cards, with designs of Father Time, etc.; each card bears a fine representation of a check on "The Bank of Good Fortune," "Bank of Pleasure," "Bank of Love," etc., paying sum of "365 happy days." "Ten Thousand Good Wishes," etc., with space for name of payee. The cards are perforated at the end and can be detached from the book. 1 dozen in pkg.
Per doz. books, $1.25

CHRISTMAS POSTAL CARDS.

5987-8½ Special Christmas Post Cards. A superb collection of dainty and choice post cards with distinctive holiday designs such as Father Christmas, Christmas Trees, Angels, Birds, Landscapes, etc., etc. Appropriate mottoes in gold. 100 assorted in box.
Per 100, $0.85

CHRISTMAS CARDS.

6250-10 Large variety of very beautifully lithographed cards. 100 assorted in a box. Size of card, 3x4 in.
Per 100, $1.00

6251-6¾ Holly Cards. A variety of designs of highly lithographed embossed cards with gold filigree work and gold border. 100 assorted in box. Size of card, 2x4 in. Per 100, $0.65

6252-10 Embossed and Cut Out Colored Cards. Large variety of designs in fancy shapes. A very beautiful assortment. 100 assorted in box. Average size of card, 2½x3 in.
Per 100, $1.00

6253-10 Beautifully lithographed and embossed holly cards; pretty gold border; packed 100 in box. Size of card, 3⅜x4½ in. Per 100, $1.00

6254-10 Holly Tags. Beautifully lithographed and embossed; each tag printed with suitable Xmas motto; red border; are all punched; packed 100 assorted in box. Size of tag, 2⅝x3¼ in.
Per 100, $1.00

6255-10 Holly Tags. Embossed designs; 100 assorted in box; each printed with suitable motto; beautiful gold border and punched. Size, 2½x3¼ in.
Per 100, $1.00

6256-15 Embossed folders with verses; a variety of designs beautifully lithographed; 100 assorted in box. Average size of folders when open, 4x5 in.
Per 100, $1.50

6257-130 Fancy book marks, highly lithographed; packed 50 assorted to a box. Size, 2x5 in. A very pretty assortment. Each card appropriately mottoed.
Per 100, $1.30

6258-17¾ Embossed and cut out fancy shaped cards; packed 100 assorted in box; average size, 3x4 in. A very beautiful assortment. Per 100, $1.75

6259-15 Holly Postal Cards. A variety of beautiful designs with suitable Xmas mottoes and gold and blue embossed border. Size, 3½x5¼ in. Packed 100 assorted in box. Per 100, $1.50

6260-15 Embossed and lithographed cards; a variety of holly designs; beautiful green and gold border. Packed 100 assorted to a box. Size, 2¾x5¾ in.
Per 100, $1.50

6261-15 A variety of designs of very beautiful post cards in Santa Claus and Juvenile designs. Packed 100 assorted to box. Size, 3½x5¼ in.
Per 100, $1.50

6262-20 Embossed colored cards; a variety of beautifully lithographed cards in very pretty designs; 100 assorted in a box. Average size, 3½x5¾ in.
Per 100, $2.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CHRISTMAS CARDS—Continued.

6263-20 A variety of designs of beautiful folders; packed 100 assorted in box; a very beautiful assortment of juvenile and landscape designs. Average size of folder when open, 4x8 in.
Per 100, $2.00

6264-20 Lithographed and frosted postal cards; a variety of designs beautifully lithographed winter designs, frosted; packed 50 assorted in box. Size, 3½x5½ in. Per 100, $2.00

6265-25 Holly Cards; a variety of beautiful designs in fancy shapes. such as fans, mandolins, bells, circles, etc.; a very beautiful assortment; 100 in box. Average size, 4x4½ in. Per 100, $2.50

6266-30 Jeweled Folders; a variety of designs, with gold and colored metallics. Average size when open, 4x4 in. 100 assorted in box. Per 100. $3.00

6267-30 Leaflets; a variety of designs, each tied with a beautiful bow of ribbon or silk tassel; a very beautiful assortment; 100 assorted to a box. Average size when open is 3½x4 in.
Per box, $3.00

6268-30 Opal Post Cards; a variety of designs; changeable in color; a very novel assortment. 100 assorted in box. Size, 3½x5½ in. Per box, $3.00

6269-30 Embossed cards, variety of designs, with silk flowers; beautiful colors and designs; fancy cut out edges; packed 50 assorted in a box. Size, 3x5 in. Per 100, $3.00

6270-60 Jeweled leaflets, with gold and colored metallics; a very pretty assortment; each leaflet has a ribbon or tassel bow; Average size when open. 5x6 in. Packed 50 in box.
Per 100, $6.00

6271-80 Leaflets with verses; a variety of designs, jeweled with gold and colored metallics; a very striking assortment, each leaflet tied with a cord and tassel; packed 25 assorted in box. Average size when open is 3x5 in.
Per 100, $8.00

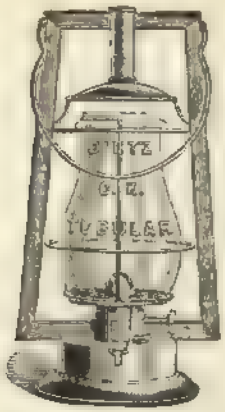
6272-120 Large handsome leaflets with verses, beautifully jeweled with gold and colored metallics; each leaflet tied with silk cord and tassel; a very beautiful assortment; packed 25 assorted in box. Average size, 4x5½ in.
Per 100, $12.00

6273-17½ Mechanical pulling cards; very beautiful in design and construction; packed 12 assorted in box. Size, 4½x7 in. Per doz., $1.75

6275-40 Large and beautiful mechanical pulling cards; each piece a novelty in itself; packed 12 assorted in box. Size, 7x8½ in. Per doz., $4.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Lanterns



Dietz O. K.—Bright Tin, Fitted with No. 1 Fitall Burner $\frac{5}{8}$ in. Wick, and Full Weight Fitall White Globe..... Per Doz. $6.75

One Doz. in a Case. Weight 35 Pounds

Dietz Monarch—Bright Tin Fitted with No. 1 Victor Burner, $\frac{5}{8}$ in. Wick, and Full Weight Fitall White Globe..... Per Doz. $6.25

One Doz. in a Case. Weight 35 Pounds

Dietz Victor—Bright Tin. Fitted with No. 1 Victor Burner, $\frac{5}{8}$ in. Wick, and Full Weight Fitall White Globe Per Doz $6.25

One Doz. in a Case. Weight 35 Pounds

Junior Blizzard (Cold Blast). Fitted with No 1 Junior Burner $\frac{5}{8}$ in Wick, and Junior Globe. Per Doz. $8 80

One Doz. in a Case. Weight 30 Pounds

No. 2 Blizzard—(Cold Blast). Fitted with No 2 Blizzard Burner, 1 in. Wick, and Blizzard Globe Per Doz $10 50

One-Half Doz in a Case. Weight 26 Pounds

Lanterns

Per Doz.

Steel Clad Railroad—Bright Tin with Flat Steel Upright Guards and Skeleton Bottom; With outside Wick Raiser, Fitted with No. 1 Ratchet or No. 1 Convex Burner, and No. 39 Globe.. ..$14 50

One Doz. in a Case. Weight 48 pounds

Per Doz.

No. 3 Conductors—All Brass, Nickel Plated, Stamped Base, Fitted with No. 1 Ratchet Burner, and No. 3 Conductors White Globe; Holds Signal Oil enough to burn 13 hours. $72.00

One Doz. in a Case. Weight 44 pounds

Dash Lamps

Per Doz.

Buckeye Dash Lamps—Blue Japan Finish, 13 in. high, Fitted with No. 1 Victor Burner, and Fitall Globe with Bulls Eye $9 50

One-Half Doz. in a Case. Weight 26 pounds

Per Doz

No. 2 Blizzard Dash Lamps—Blue Japan Finish, 14¼ in. high, Fitted with No 2 Blizzard Burner, 1 in Wick, and Blizzard Globe; Has Pat. Bulls Eye Lens secured to plate..... .....$15.00

One-Half Doz. in a Case. Weight 40 pounds

Lantern Globes

	Per Doz
Dietz Junior, White.	$2 00
Dietz Fitall, Plain White.....	2 00
Dietz Fitall, Plain Ruby.....	6.00
Dietz Fitall, Bulls Eye, White..	4 00
Dietz Blizzard, Plain, White	$2 80
Dietz Blizzard, Bulls Eye, White..	4.80

CELLULOID RATTLES—Continued.

3612-20 Celluloid Rattle. Fine quality, heavy celluloid, fruit shapes, painted in natural colors, large ring. Length, 7 in. ½ dozen assorted in box.
Per doz., $2.00

3619-22½ Celluloid Rattle. Assorted flower shapes, painted in natural colors, mounted with colored baby faces, large celluloid ring on handle Length, 7½ in. ½ dozen assorted in box.
Per doz., $2.25

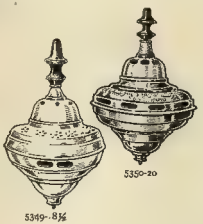
HUMMING TOPS.

5345-4 Humming Top. Beautifully colored in blue, red and gilt, black enameled handle. Height, 5½ in. Diameter 4¼ in 1 dozen in box
Per doz., $0.40

5346-4 Nickel-plated Humming Top. Embossed circle on top, red stained wood handle. Height, 5½ in. Diameter, 4½ in. 1 dozen in box. **Per doz., $0.40**

5347-7½ Fancy colored Humming Top With red enameled handle Height, 7 in Diameter, 4½ in. 1 dozen in box
Per doz., $0.75

5348-7½ Nickel-plated Humming Top. Two embossed circles on top, red handle Height, 7 in. Diameter, 4½ in. 1 dozen in box. **Per doz., $0.75**



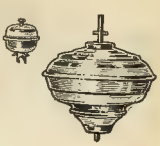
5350-20

5349-18½ Musical Changeable Tune Top. Highly nickel-plated and embossed, coral top, black enameled handle. Height, 7½ in. Diameter, 4½ in ½ dozen in box. **Per doz., $1.85**

5350-20 Changeable Tune Musical Top. Beautifully colored with blue, green, red and gilt stripes, embossed circle on top, red enameled handle Height, 7½ in. Diameter 5 in ½ dozen in pkg
Per doz., $2.00

5351-40 Changeable Tune Musical Top. Highly nickel-plated and embossed, black enameled handle Height, 8 in Diameter, 5½ in. ¼ dozen in box.
Per doz., $4.00

IMPORTED SPRING TOPS.



5352-7½ Mechanical patent spring Humming Top. Beautifully colored with red, green and gilt stripes. Height, 3½ in. Diameter, 2½ in. 1 dozen in box.
Per doz., $0.75

5353-18½ Mechanical Patent Spring Musical Top. Beautifully colored with red, green and gilt stripes. Height, 4¼ in. Diameter, 3½ in. ½ dozen in box
Per doz., $1.85

5355-22½ Mechanical patent spring Musical Top. Beautifully colored with red, green and gilt stripes Height, 4 in Diameter, 4 in. ½ dozen in box.
Per doz., $2.25

5356-40 Mechanical patent spring Humming Top. Nickel-plated. Height, 5 in. Diameter, 4½ in ¼ dozen in box
Per doz., $4.00

AUTOMATIC ORGAN.

5358-45 Automatic Organ Top. Nickel-plated and embossed, black enameled handle Height, 7½ in. Diameter, 5½ in. ¼ dozen in box. **Per doz., $4.50**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

THE GARDNER GYROSCOPE.

2955-18½ The Gyroscope is a most instructive instrument, and with it many interesting experiments can be performed. It is used to demonstrate the principles of rotation, attraction and equilibrium of bodies when in motion, the center of gravity and centrifugal. The gyroscope is an instrument of high precision A great variety of experiments are obtainable with the Gyroscope, as shown in the above illustration, thus providing a diverting, instructive and agreeable amusement in company Complete with pedestal. Diameter, 2¾ in
Per doz., $1.85

PATENT DISC TOPS.

5275-20 Patent Disc Top. Made of heavy metal with colored stripes on top. Spun by placing driving stick in center and pressing downward. Three assorted sized tops and driving stick packed complete in a box. Diameter of tops, 1¾, 2 and 2¼ in. Per doz. sets, $2.00

5276-20 Patent changeable color Disc Top. Made of heavy enameled metal Spun by placing driving stick in center and pressing downward. Color changes every time stick is pressed downward Diameter of top, 4 in. ½ dozen in box
Per doz., $2.00

UNCLE SAM FLAG TOP.

3940-4 Uncle Sam Flag Top Spins on either end and without the use of a string, being an automatic spring winder of simple and durable construction. A most fascinating novelty and exceedingly popular. Finely finished and ornamented with the American flag colors Height, 2½ in. Packed 2 dozen in a box.
Per doz., $0.40

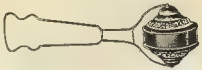
THE TOPSY TOP.

3941-4 A very handsome, automatic spring winding top, durable construction The spinner or bolder is fitted with a patent winding set off spring that spins the top with great force. Made of hardwood with metal points of tempered steel spring Attractively painted and striped in four colors. Height, 2¼ in Packed 2 dozen in a box with large colored lithograph display card
Per doz., $0.40

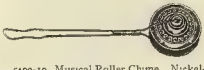
"NEVER-STOP HUMMING TOP.

3942-7½ Metal Humming Top. Handsomely painted in five enamel colors It is spun by an improved automatic spring device which will not get out of order and any child can operate The top being metal and the spring of tempered steel, is practically indestructible Diameter, 3 in. Packed 1 dozen in a box with an attractive lithographed show card
Per doz., $0.75

ROLLER CHIMES.

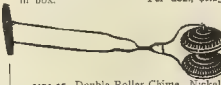


5401-7½ Musical Roller Chime. Nickel plated and embossed tin, colored stripe around center, wire handle Diameter, 3¼ in.; Length, 13½ in. 1 dozen in box
Per doz., $0.75



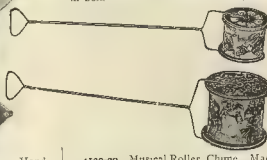
5402-10 Musical Roller Chime Nickel-plated and embossed tin, colored stripe around center, wire handle. Diameter, 5 in.; length, 15½ in. ½ dozen in box.
Per doz., $1.00

5403-12½ Musical Roller Chime. Made of tin. Highly nickel-plated and embossed, colored stripe around center Diameter, 6 in.; length, 18 in. ½ dozen in box.
Per doz., $1.25



5404-15 Double Roller Chime. Nickel plated and embossed tin with red and gilt stripes, long red stained wood handle Diameter, 6½ in.; length, 25 in. ½ dozen in box.
Per doz., $1.50

4138-8½ Musical Rattle. Covered with fancy lithograph paper, black enameled wood handle Length, 7½ in. 1 dozen in box.
Per doz., $0.85



4139-20 Musical Roller Chime Made of ½ inch wood covered with lithograph paper, heavy wire twisted handle Diameter, 4¼ in; length, 23 in ½ dozen in box
Per doz., $2.00

4140-40 Musical Roller Chime Made of ½ inch wood covered with lithographed paper, twisted wire handle Diameter, 6¼ in, length, 23 in ½ dozen in box.
Per doz., $4.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Razors

Tree Brand.

Red Injun—Special Full Hamburg Ground.

No		Per Doz.
100	½ inch, Square Point, **Black Rubber** Handle,	$36.00
101	—⅝ inch, Square Point, **Black Rubber** Handle,	36.00
101C	—⅝ inch, Square Point, **Celluloid** Handle,	40.00

Extra Hollow Ground.

No		Per Doz
235	½ inch, Square Point, **Black Rubber** Handle,	$34.00
236	—⅝ inch, Square Point, **Black Rubber** Handle,	34.00

Full Hamburg Ground.

No		Per Doz
415	½ inch, Square Point, **Black Rubber** Handle,	$32.00
416	—⅝ inch, Square Point, **Black Rubber** Handle,	32 00
1901	⅝ inch, Round Point, **Black Rubber** Handle,	32 00

Extra Hollow Ground.

No		Per Doz.
345	—½ inch, Square Point, **Black Rubber** Handle,	$28.00
346	—⅝ inch, Square Point, **Black Rubber** Handle,	28 00
347	—¾ inch, Square Point, **Black Rubber** Handle,	28.00

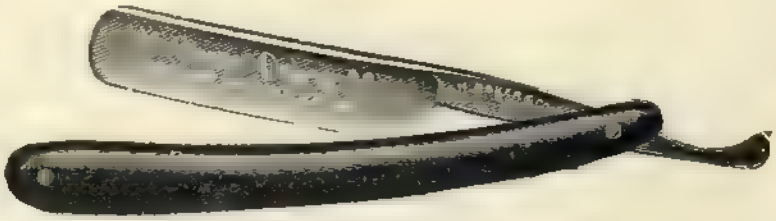
Each Razor in a Box, One-half Dozen in a Box

Razors

Tree Brand.

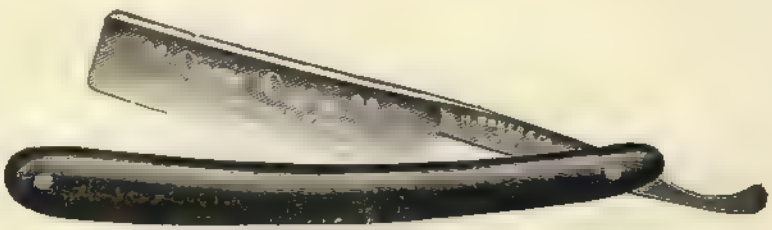
Extra Hollow Ground.

No		Per Doz.
2461—5/8 inch, Square Point, **Smoked Pearl Celluloid** Handle,	. . . . .	$21.00



Half Hollow Ground.

No		Per Doz
1061—5/8 inch, Round Point, **Black Rubber** Handle,		$16.00



Half Hollow Ground.

No		Per Doz.
226—5/8 inch, Square Point, **Black Rubber** Handle,	. . . . .	$16.00

Boker Corn Razors

Full Crocus Polished.

No		Per Doz.
850—Corn Razor, **Black Rubber** Handle,	. . . . .	$12.00

Each Razor in a Box, One-half Dozen in a Box.

Razors

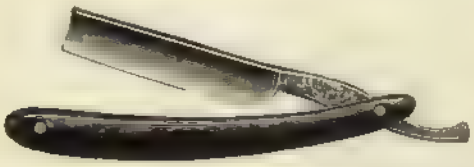
Geneva Cutlery Co.

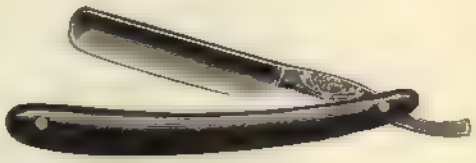
Full Crocus Polished, Full Hollow Ground.

No.		Per Doz.
22160	⅝ inch Square Point, **Fancy Celluloid** Handle,	$18.00

Full Crocus Polished, Full Hollow Ground.

No.		Per Doz.
101800N	—⅝ inch, Square Point, **White Celluloid** Handle,	$16.00





Crocus Polished, Full Hollow Ground, Black Rubber Handles.

No.		Per Doz.
023	—½ inch, Square Point,	$15.00
023	⅝ inch, Square Point,	15.00
023½	—½ inch, Round Point,	15.00
023½	—⅝ inch Round Point,	15.00
014	½ inch Square Point,	15.00
014	—⅝ inch Square Point,	15.00
014½	½ inch, Round Point,	15.00
014½	—⅝ inch, Round Point,	15.00

Crocus Polished, Full Hollow Ground, Black Rubber Handles.

No.		Per Doz.
01904	—½ inch, Square Point,	$12.00
01904	—⅝ inch, Square Point,	12.00
01904	—¾ inch, Square Point,	12.00
01903	—½ inch, Square Point,	10.00
01903	—⅝ inch, Square Point,	10.00
01903½	½ inch, Round Point,	10.00
01903½	⅝ inch, Round Point,	10.00
01800	—½ inch, Square Point,	9.00
01800	—⅝ inch, Square Point,	9.00
01800	—¾ inch, Square Point,	9.00

Each Razor in a Box, One Half Dozen in a Box

Safety Razors

Ever-Ready.

	Per Doz.
Razors, Complete, Nickel Plated Frame, with Twelve, Blades in a Lined Leatherette Case,	$12.00
Extra Blades, per Dozen,	.75

Gillette.

	Each
Razors, Complete Silver Plated Frame, with Twelve Blades, in a Leather Plush Lined Case,	$5.00
Extra Blades (per Set 12),	1.00

Williams Shaving Soap

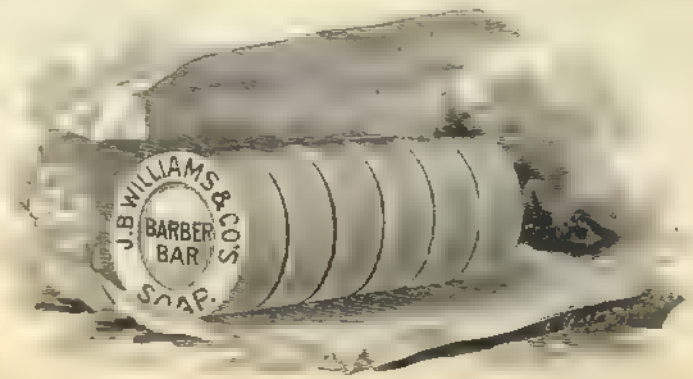
Shaving Stick.

	Per Doz.
Small, in Hinged Top Nickel Case,	$1.00
Large, in Hinged Top Nickel Case,	4.00

One-half Dozen in a Box

	Per Doz
Mug,	$0 80

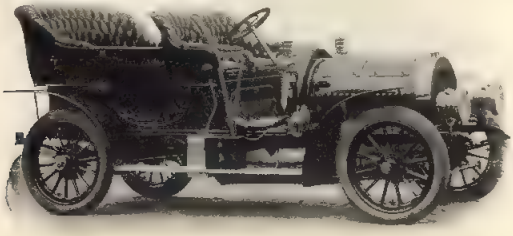
One Dozen in a Carton



	Per Pound
Barbers' Bar—Six Cakes in a One Pound Package,	$0.50

The 1906 Royal Tourist

The 1906 Royal Tourist, made by Royal Motor Car Co., Cleveland, Ohio, is a side entrance car, the body being built on the "King of the Belgians" style. It is luxuriously upholstered and every feature necessary for comfortable touring is provided.

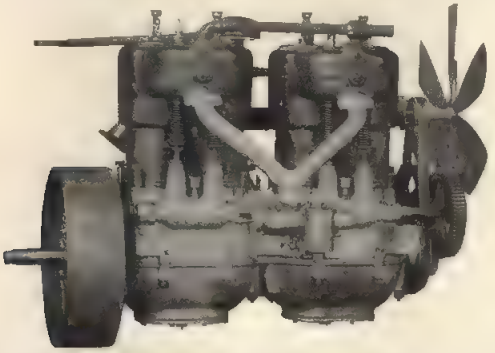


The 1906 Royal Tourist. Price, $3500

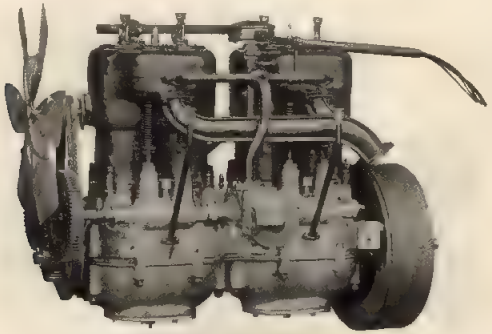
Ample provision is made for carrying tools and luggage. The 22 gallons of fuel carried is sufficient for 250 miles' running. The fuel tank is under the gas tank.

THE MOTOR

The motor has four cylinders, each 5 ins. bore by 5½ ins. stroke. Valves are mechanically operated, the exhausts on one side, the inlets on the opposite side. Valves are interchangeable, spark plugs are located over the inlet, and as they are swept by fresh gases, never get dirty. The cylinders are cast in pairs. Bronze bearings are used throughout in the engine, with the exception of the wrist-pin bearings in the connecting rods, which are of hardened steel. All bearings have ample surface and will not need replacing in less than a year's time. The flywheel is of large diameter, and is bolted to a flange, which is integral with the crank shaft. Fibre gears are used on the cam shaft, making the gears absolutely noiseless. All wearing parts on the cam mechanism are carbonized and hardened. The wrist-pins are hardened and ground. The crank shaft is a solid drop forging and is ground to size. The commutator is situated on top of the cylinders of the engine, and is easy of access. A gear driven centrifugal pump, with a hardened and ground gear and shaft, takes care of the water circulation, the gear and shaft being practically indestructible. Provision is made for examining the connecting rod bearings, and, if necessary, removing the same without dismantling the entire engine. This is done by removing the large hand hole plate under the lower half of the engine.



Inlet side of engine, 1906 Royal Tourist. 5-in. bore, 5½-in. stroke, exhaust valves on opposite side; valves all interchangeable; spark plugs over inlet; cylinders cast in pairs, commutator on top, easy of access, connecting rod bearings, etc., accessible through hand hole on under side.



Exhaust Side 1906 Royal Tourist Motor

CLUTCH.

A conical leather faced clutch, of large diameter, is used, having flat springs placed under the leather, so that the starting of a car is progressive, owing to the clutch taking hold easily and gradually. No adjustment is ever necessary on this clutch. A full universal joint is used between the clutch and the transmission case, thus making it unnecessary to have the engine absolutely in line with the transmission.

Clutch of the 1906 Royal Tourist

TRANSMISSION.

The transmission is of the sliding gear type, having three speeds forward and one reverse, with direct drive on high gear. Hess-Bright ball bearings are used in the transmission. All gears are of exceptionally wide face, and are carbonized and hardened. Special grades of steel are used throughout in the construction of this transmission. All gears are bolted to flanges, so that no dependence is placed on keys or set screws to hold the gears in place. The flanges to which these gears are bolted are integral with the shaft.

The universal joints and the propeller shaft on this machine are exceptionally strong, and all wearing parts are hardened.

STEERING GEAR.

The steering gear is of the worm and segment type, and is exceptionally easy in its action. The steering of the car can be done readily by a lady, or even a child. All parts of the steering gear which are subject to wear are hardened. All parts are bolted in place, and all levers are either bolted or fastened by means of squared ends, so that there are no keys to wear loose.

FRAME.

The frame is made of pressed steel, and of sufficient strength so that it will not sag or become distorted from the hardest possible use to which the car may be put. The spring hangers are made of drop forgings. No vital part of the frame or fasteners are made of anything but the best steel forgings. The dash is an aluminum casting, with all the necessary parts cast on it. The oiler is a positive feed device, and the entire oiling

Drop Forged Crank Shaft of the 1906 Royal Tourist.

system is in plain sight. The induction, which is of quadruple type coil, is mounted on the dash. The radiator is of the cellular type, amply large enough to take care of the cooling under the most adverse circumstances.

The weight of the car is taken on the tubing, which surrounds the driving member of the axle, and not directly on the rotary or drive member. The entire rear axle is equipped with roller bearings.

Shaft Drive and Rear Axle of the 1906 Royal Tourist.

The fan is of large diameter, securely fastened to the engine, and it is driven by a large V-shaped belt. This fan draws air through the entire radiating surface.

AXLES.

The rear axle is gear driven, with bevel gear differential and clutch driven wheels.

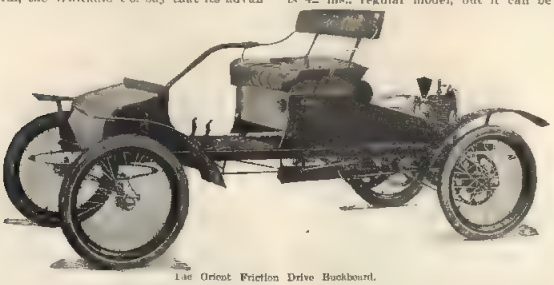
The front axle is of the tubular type, heavy enough to prevent springing unless an accident is met with. The front wheels run on roller bearings, similar to those used in the rear axle. All of the vital parts of the front axle are made of drop forgings.

Price of the 1906 Royal is $3500.

The Orient Friction Drive Buckboard

Several important changes have been made in the Orient Buckboard for 1906, among them the employment of friction drive. The 1906 machine is known as Model BB, and the manufacturers, Waltham Mfg Co., Waltham, Mass., state that it is quieter, easier running, freer from vibration and easier to operate than last year's Model A. Regardless of the conflicting opinions on the advantages and disadvantages of friction drive in general, the Waltham Co. say that its advantage on this type and weight of car are undeniable. The side lever moves the friction wheel across the face of the disk for speed variation, passing the centre for reverse motion. The 1905 Buckboard was fitted with gear drive and was not provided with reversing mechanism. Drive is now by double chains. A benefit claimed for the present friction transmission is the fact that speed can be varied to as low a point as is required to meet road conditions.

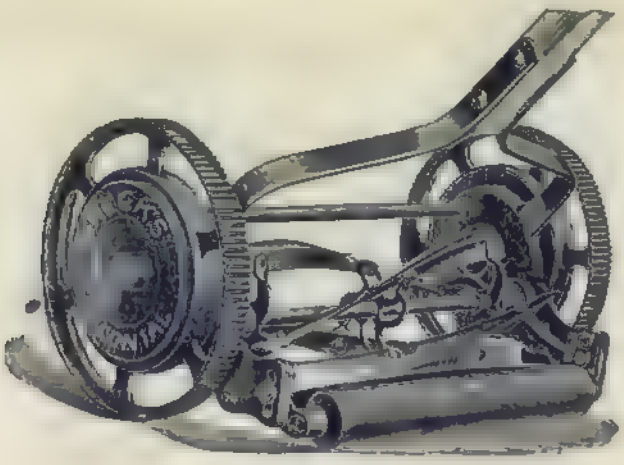
Model BB has a gracefully designed body which is carried on four full elliptic springs which, in conjunction with the long wheel base, make riding very comfortable. The new body is mounted on the usual buckboard platform, and besides providing comfortable seats also gives plenty of storage space. The road clearance is increased to 10 ins., being formerly 6 ins. Powerful band brakes are fitted to the rear wheels. Another new feature is a light fibre fan employed to assist in cooling the engine. The gauge of Model BB is 42 ins., regular model, but it can be furnished with a 56-in. gauge if desired. All vital parts are protected from dust, but in the illustration the covers have been removed. Oiling is controlled from the seat. The capacity of the fuel tank is 3½ gallons.



The Orient Friction Drive Buckboard.

In a recent endurance test this car made 121 miles in 6¾ hours on four gallons of gasoline and 1 1-3 pints of oil. The following day, in the same test, it made 93 miles in 5¼ hours on three gallons of gasoline and one pint of oil. Immediately following this test the car ascended the famous landmark known as "Old Boston Rock," an elevation of 562 ft.

BRECK'S "COLONIAL" LAWN MOWER.

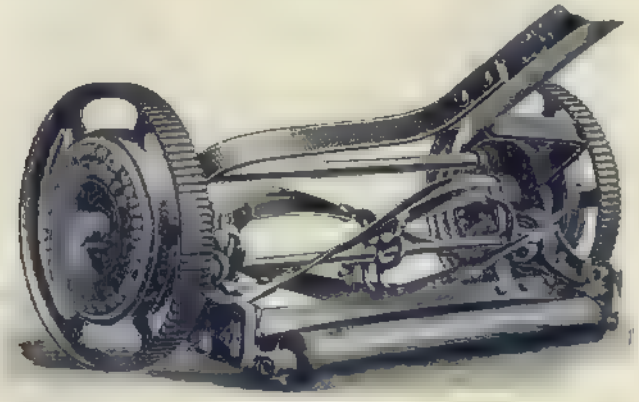


Latest and best.

Breck's Colonial Lawn Mower is made with 10 inch wheels, 4-bladed wiper and parallel self-oiling bearings. Every valuable improvement used in the latest pattern mowers of other manufacturers, and many new features are embodied in the Colonial, making it the most desirable and up-to-date machine made. Our long experience in handling lawn mowers entitles our judgment to consideration; therefore, we positively guarantee satisfaction to every purchaser.

Sizes	14-inch	16-inch.	18-inch.	20-inch
Our net prices	$7.25	$8.00	$9.00	$10.00

WORCESTER BALL BEARING LAWN MOWER.

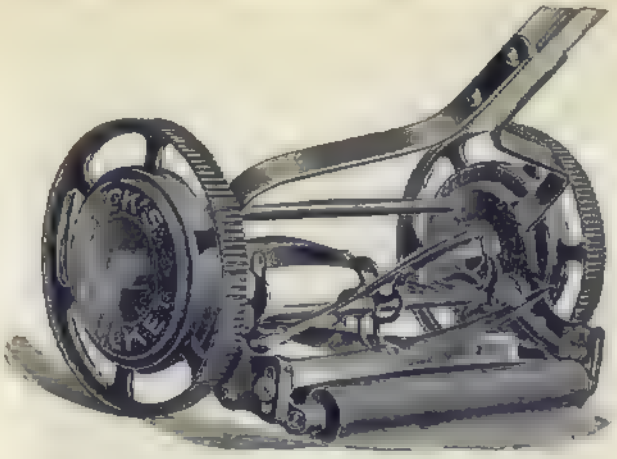


10-inch wheel. 4-bladed wiper. Ball bearings.

Ball Bearing Mowers in the past have been imperfectly constructed, and very difficult to keep in order. We were unable to recommend them for this reason. From careful and exhaustive trials we have found the Worcester Mower free from the defects of earlier machines, and from our knowledge of its construction and its perfect work, we have no hesitation in offering it to our customers as the highest grade Ball Bearing Mower yet produced. Like the "Colonial," the "Worcester" is guaranteed to give satisfaction.

Sizes	14-inch	16-inch.	18-inch.	20-inch.
Our net prices	$9.25	$10.00	$11.00	$12.00

BRECK'S CRICKET MOWERS.



10-in. High Wheels, 4-Blade Wiper, Ball Bearing.

Best low-priced machines made. Far better than the mowers sold by dry goods and department stores.

High Wheel Cricket Mowers.

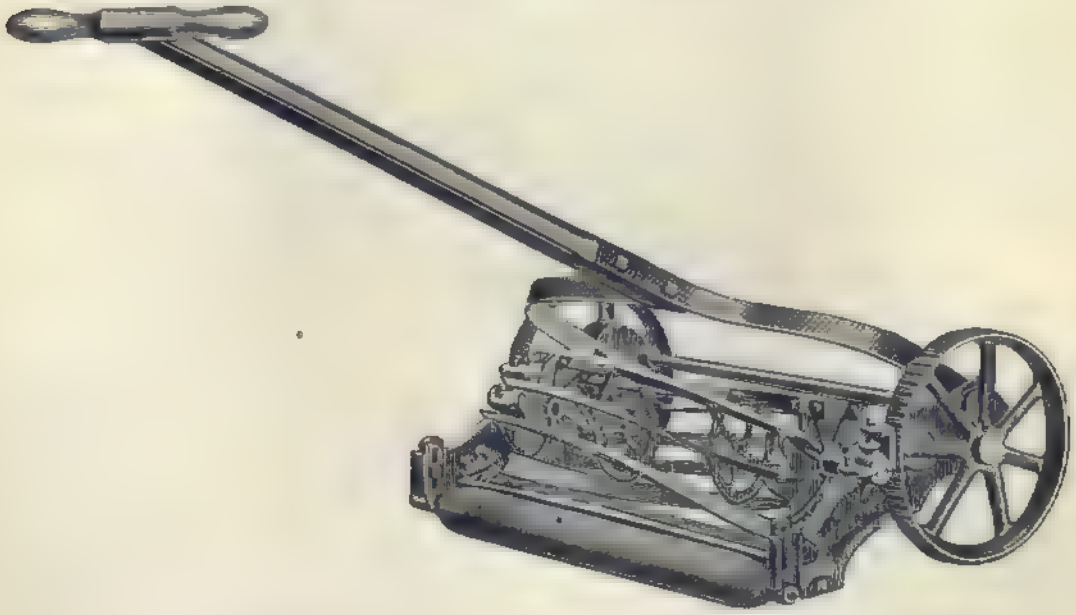
Sizes	14-in.	16-in.	18-in.
Our net prices	$5.50	$6.00	$6.50

Low Wheel Cricket Mowers.

8-in. Wheels, 3-Blade Wiper, Plain Bearings.

Sizes	12-in.	14-in.	16-in.	18-in.
Our net prices	$2.75	$3.00	$3.25	$3.50

GOLF LAWN MOWER.

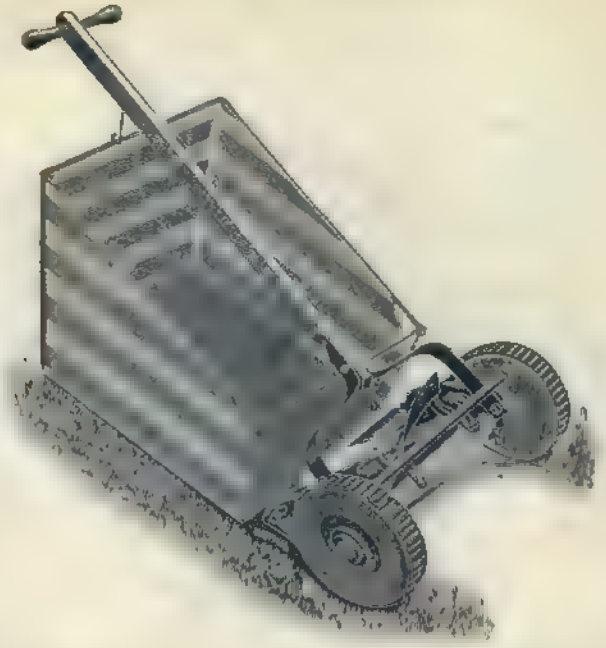


10-in. Wheels, 8 Blades. Style "Golf." 7½-in. Cylinder.

This mower is perfection for golf and cricket grounds. Is made on correct principles, insuring a fine, close and even cut. In all double ratchet mowers both wheels are drivers.

Width of cut, inches	15	17	19	21
Mfrs. prices	$25.00	$28.00	$31.00	$34.00
Our net prices	13.00	14.50	16.00	17.50

CUT GRASS COLLECTOR.



Most approved pattern Can be used on any make of mower, either high or low wheel.

No. 1. For mowers of 12, 14 and 16-in cut . . . . . Our net prices, each, $1.00
" 2. " " " 16, 18 " 20 " " . . . . . " " " " 1.25

COLDWELL IMPROVED HORSE LAWN MOWER.

We offer the Coldwell Horse Lawn Mower as the best machine for use on public parks, golf grounds, private estates, etc. This mower is used to the exclusion of other makes by the United States Government, the public parks of our largest cities and the leading links of this country. Each mower is sold complete with shafts, seat and side draft attachment.

30-in. complete . . . . . Mfrs. price, $110.00 Our net price, $75.00
35 " " . . . . . " " 135.00 " " " 90.00
40 " " . . . . . " " 170.00 " " " 115.00

For cost of above mower with 6 blades, especially adapted to golf grounds, add $7 00 to our net prices.

Descriptive Circulars Mailed on Application.

CHAIN ELEVATORS.

Single-Strand Chain Elevator.
FIG 2376

SINGLE-STRAND.

This form of elevator works admirably with buckets from 12 inches in length to the smallest size in use. We have Link-Belting of various widths for use with the different sizes of buckets.

Section of Double-Strand Chain Elevator.

For buckets over 12 inches in length we recommend the Double-Strand pattern as shown above.

The sprocket wheels on the head shaft of this style elevator should be keyed on with the teeth exactly in line, while only one of the wheels on the boot shaft should be keyed, the other being allowed to run loose between collars. This keeps the buckets level and avoids difficulty from uneven wear of the chain links.

CHAIN ELEVATORS.

FIG. 2377
Double-Strand Elevator. Centrally Hung Buckets, For Heavy Work.

FIG. 2378
Single-Strand Stone and Ore Elevator.

CHAIN CONVEYORS.

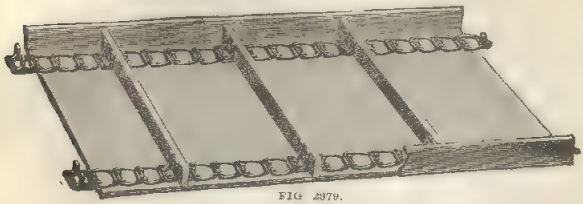


FIG. 2879.
Section of Double Strand Chain Conveyor.

We have had wide experience in designing and furnishing Chain Conveyors of every description. State requirements and we will take pleasure in submitting designs and estimates.

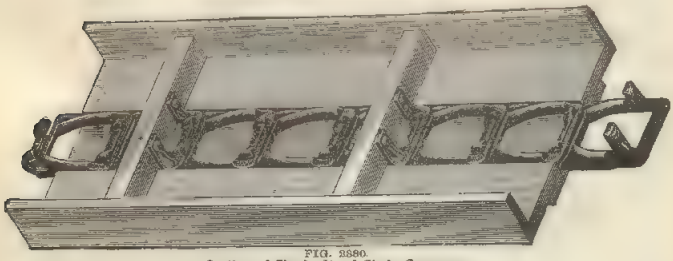
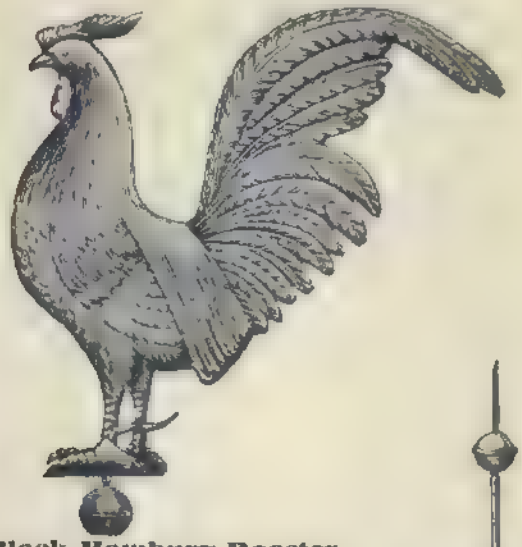
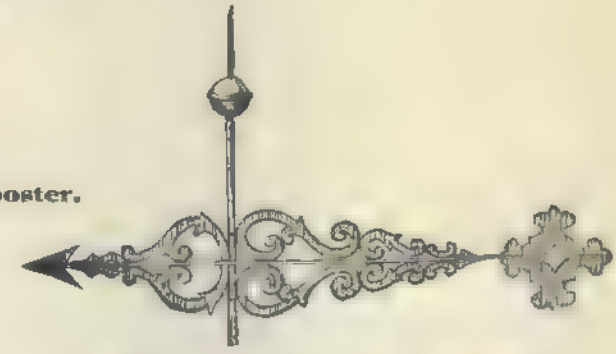


FIG. 2880.
Section of Single Stand Chain Conveyor.

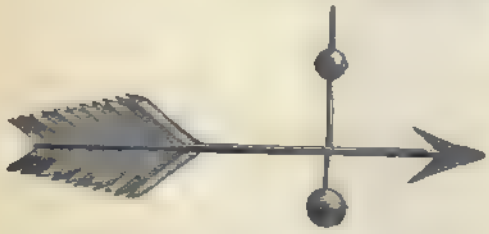
COPPER WEATHER VANES.



No. 81. Black Hamburg Rooster.



No. 304. Scroll or Church Vane.



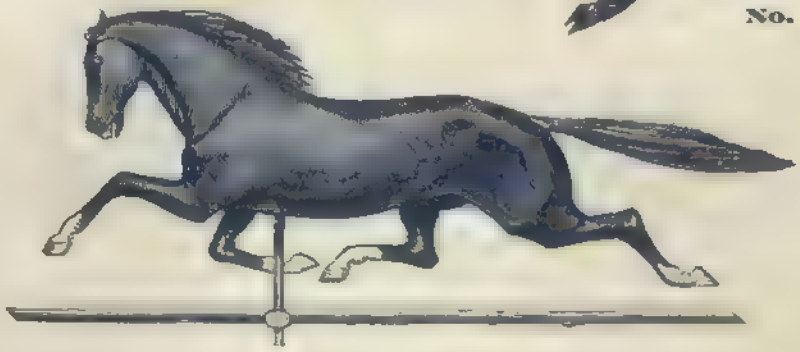
No. 418. Arrow.

Nantucket Sailor Men.

For prices see page 65.

No. 21. Cow.

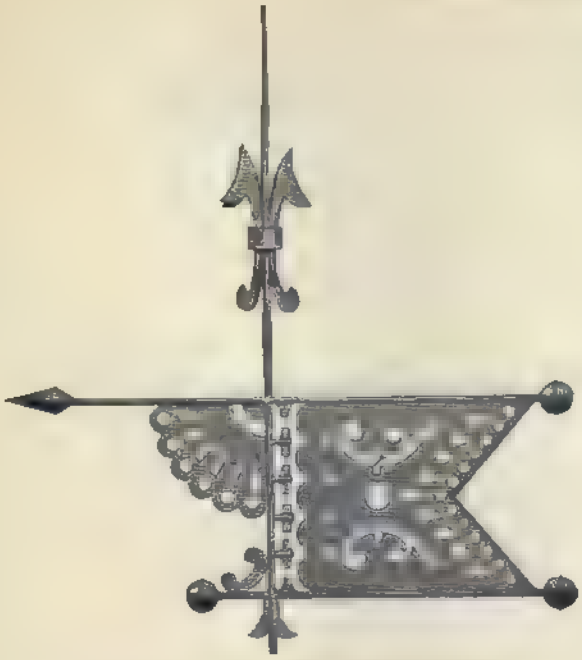
No. 85. Deer.



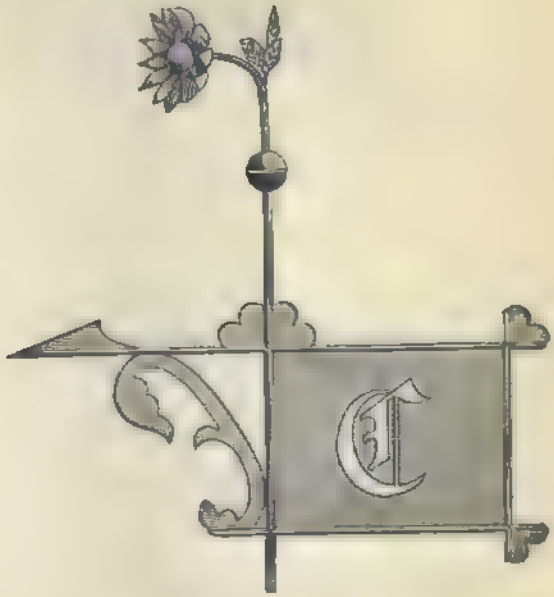
No. 74. Dexter.

Each Vane includes a wrought iron spire with steel spindle, points of compass, gilt letters and copper balls. For prices see page 66.

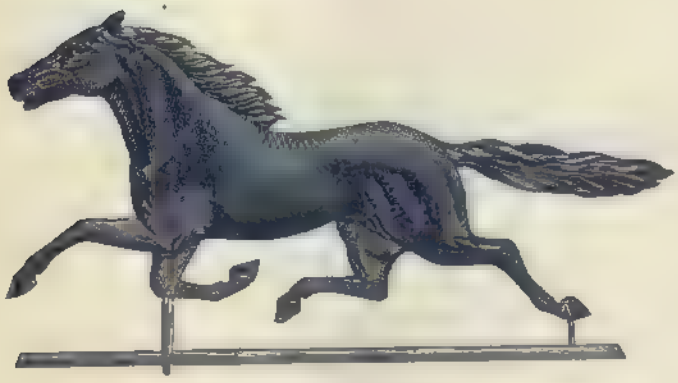
COPPER WEATHER VANES.



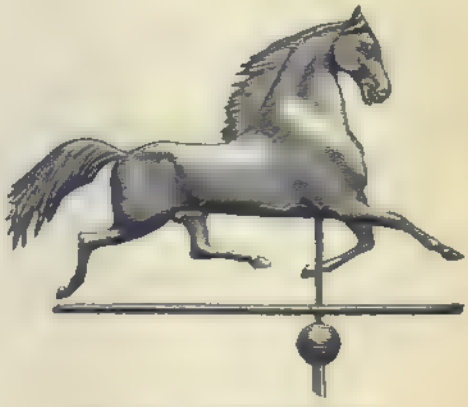
No. 370. Egyptian Banneret.



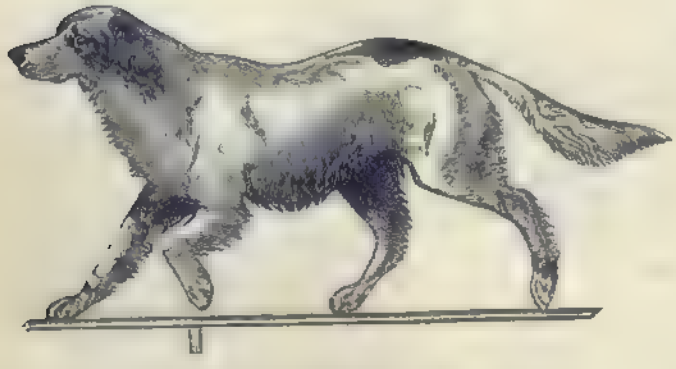
No. 382. Initial Banneret.



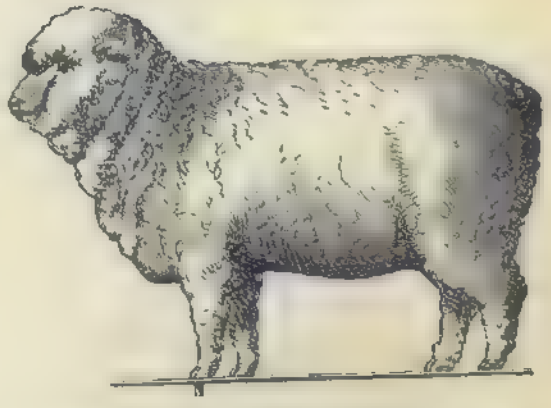
No. 350. Smuggler.



No. 76. Black Hawk.



No. 320. English Setter Dog.



No. 27. Merino Sheep.

Each vane includes a wrought iron spire with steel spindle, points of compass, gilt letters and copper balls.

For prices, see page 66.

COPPER WEATHER VANES.

We warrant our Weather Vanes to be made of copper, and gilded with 23 carat gold leaf. The price of each vane includes a wrought iron spire with steel spindle, points of compass, gilt letters, and copper balls. See pages 64 and 65 for illustration of vanes. Complete catalogue of Weather Vanes free on application.

We can furnish at short notice, emblematic signs and vanes, suitable for any business, such as guns, boots, watches, mortars, spectacles, padlocks, anvils, etc.

Vanes promptly made to order from any drawing or design

Horses.

No.	Description	Mfr's. Prices.	Our Net Prices.
349	Smuggler, 25 in	$15.00	$12.00
350	" 32 in.	20.00	16.00
351	" 42-in.	40.00	32.00
74	Dexter, 28-in., F. B.	25.00	20.00
75	" 42-in. "	50.00	40.00
72	Goldsmith Maid, 28-in., F. B.	25.00	20.00
1	Ethan Allen, 29-in.	25.00	20.00
2	" " 42-in.	65.00	52.00
3	Geo. M. Patchen, Jr., 36-in.	30.00	24.00
76	Black Hawk, 34-in.	30.00	24.00
77	" " 23-in.	15.00	12.00

Cows.

210	Jersey, 34-in., F B.	65.00	52.00
21	Cow 29-in	22.00	17.60
32	" 33 in	to order only	
20	" 41 in.	65.00	52.00

Oxen.

17	Ox, 25-in	20.00	16.00
16	" 30-in	35.00	28.00
15	" 41 in.	65.00	52.00

Bulls.

19	Bull, 30-in.	35 00	28.00
18	" 41 in	65.00	52.00

Sheep.

225	Cotswold, 25-in.	25.00	20.00
27	Sheep 28-in.	25.00	20.00

Rams.

401	Cotswold, 32-in.	150 00	120.00
26	Ram 29-in.	30.00	24.00
43	" 33-in.	50.00	40.00

Roosters.

81	Black Hamburg, 25-in.	30.00	24.00
23	Rooster, 21-in.	16.00	12.80
22	" 30-in.	25.00	20.00
78	" 13 in., F. B.	20.00	16.00
80	" 25 in., "	25.00	20.00
24	Game cock, 17 in	12.00	9.60
79	" " 9-in.	8.00	6.40

Bannerets.

370	Egyptian, 30-in	25.00	20.00
371	" 30 in.	35.00	28.00
372	" 42 in.	45.00	36.00
373	" 48 in.	60.00	48.00
382	Initial, 24 in.	17.00	13.60
383	" 30-in.	20.00	16.00
384	" 36 in	30.00	24.00
385	" 42 in	40 00	32 00
386	" 48 in	55 00	44.00
387	" 60-in	75.00	60.00

Scrolls.

307	4 feet	25.00	20.00
308	3½ "	18.00	14.40
309	3 "	16.00	12.80
310	2½ "	12 00	9.60
311	2 "	10 00	8.00
312	18 in.	8 00	6.40
313	15 in	6.00	4.80
314	12 in	5.00	4 00
315	8-in.	4.00	3.20
57	36-in.	16.00	12.80

Church Vanes.

No.	Description.	Mfr's. Prices.	Our Net Prices.
100	12 feet	150.00	120.00
101	10 "	120.00	96.00
102	8 "	90.00	72.00
103	7 "	75.00	60.00
104	6 "	60.00	48.00
105	5 "	50.00	40.00
106	4 "	40.00	32.00

Dogs.

320	English setter, 36-in.	35.00	28.00
88	Fox hound, 27-in.	20.00	16.00

Grasshopper.

410	42-in.	60.00	48.00

Angel Gabriel.

230	32-in.	25.00	20.00

Fox.

89	22-in.	15.00	12.00

Arrows.

56	12-in.	4.00	3.20
55	16-in.	5.00	4.00
418	18-in.	6.00	4.80
54	20-in.	7.00	5.60
419	24 in.	8.00	6.40
53	30 in.	10.00	8.00
52	36-in.	13.00	10.40
51	42-in.	16.00	12.80
50	48-in.	18.00	14.40
420	60-in.	30.00	24.00

American Eagle.

NEW PATTERNS—FULL BODIED.

38	36-in. spread	90.00	72.00
39	30-in. "	75.00	60.00
40	20 in. "	45.00	36.00
42	13-in. "	25.00	20.00
43	9-in. "	12.00	9.60
44	6-in. "	8.00	6.40

Deer.

85	50-in.	100.00	80.00
86	30-in.	35 00	28.00
87	20-in.	20.00	16.00
69	25-in.	25.00	20.00

Fish.

73	Codfish, 31-in.	22 00	17.60
217	" 35 in.	25.00	20.00
218	" 48-in.	35.00	28.00
219	Pickerel, 36-in.	25.00	20 00
220	" 48-in.	35.00	28.00

Pens.

276	Pen, 24 in.	12.00	9.60
277	" 36-in.	16.00	12.80
278	" 48 in.	22.00	17.60
279	" 60-in.	40.00	32 00
280	" 72-in.	55.00	44.00

Cardinal Points.

4	3-inch letter ½-in. spire	2.00	1.80
5	3½ " " ¾-in. "	2.50	2.25
6	4½ " " ⅞-in "	3.50	3.15
7	5 " " 1 -in. "	4.50	4.00

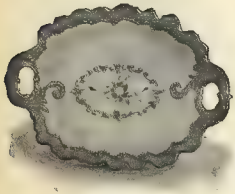
Nantucket Sailor Men.

Large, (see illustration page 64)	Mfrs price, per doz., $15.00	Our net price, each, $1.00
Large, extra quality	" " 21.00	" " " 1.50
Small	" " 4.50	" " " .25

No. 6100-90 Case Assortment of French Crystal Ware.

An assortment of beautiful dark green and amber colored transparent French Crystal Ware, all neatly decorated with flowers and sprays in natural colors, embossed gold showered edges and rich gold trimmings, to retail at 10c. to 19c.

18 different styles, 2/3 doz. each, as below:



Size, 5¾ x 8 in.

Height, 5½ in.

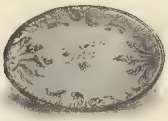
Height, 6 in.

Size, 5 x 5¾ in

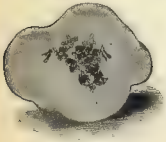
Size, 5 x 5¾ in.

Height, 4 in.; diameter, 4½.

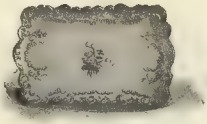
Size, 4 x 4¾ in.



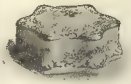
Size, 3¾ x 5½ in.



Size, 4¾ x 5½ in.

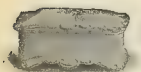


Size, 3¾ x 6 in.

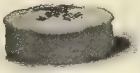


Dimension 4 in., height, 2 in.

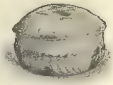
Diameter 4 in., height 1½ in



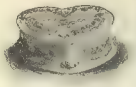
Size 2½ x 4¾ in ; height 1½ in.



Diameter 4 in.; height 1½ in.



Diameter 3½ in.; ht 2 in



Diameter 3½ in.; height 1½ in.

Dia. 2½ in ; ht. 3 in.

Total number of pieces complete, 144 **Average cost each, 6¼c.** **Price per case, $9.00**

These Goods are Shipped at Buyer's Risk.

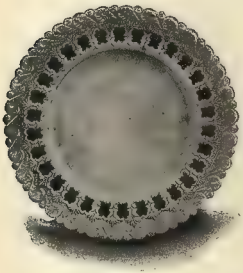
No Charge for Cases or Packing.

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

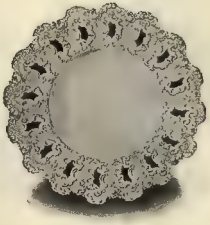
No. 6102-90 Case Assortment of Decorated French Crystal Ware.

An assortment of beautiful dark green and amber colored transparent French Crystal Ware. All neatly decorated with flowers and sprays in natural colors, embossed gold showered edges and rich gold trimmings, to retail at 25c.

8 styles, ¼ doz. each, as below:

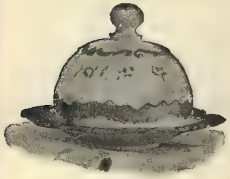


Diameter, 6 in.



Diameter, 7 in.

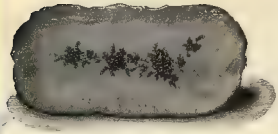
Diameter, 4½ in.; height, 6 in.



Diameter, 7 in ; height, 5½ in.

Diameter, 4 in.; height, 5 in.

Diameter, 4 in.; height, 4½ in.



Size, 4¾ x 9¼ in.

Size, 2½ x 7 in.; height, 2 in.

Total number of pieces complete, 72. **Average cost each, 12½c.** **Price per case, $9.00**

These Goods Shipped at Buyer's Risk.

No Charge for Cases or Packing.

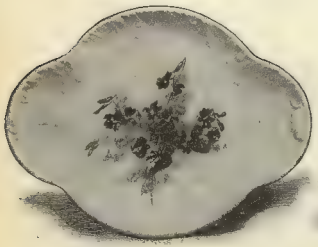
WE DO NOT BREAK CASES.

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

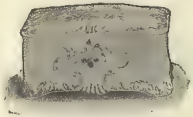
No. 6104-80 Case Assortment of French Crystal Ware.

An assortment of beautiful dark green and amber colored transparent French Crystal Ware, all neatly decorated with flowers and sprays in natural colors, embossed gold showered edges and rich gold trimmings. This makes a fine article to run as a 25c, leader.

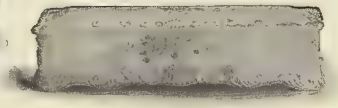
8 styles, ½ doz. each, as below:



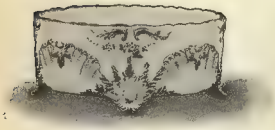
Size, 8½ x 11 in.



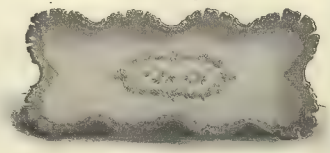
Size, 5 x 5 in , height, 2½ in.



Size, 5 x 10 in.; height, 2 in.

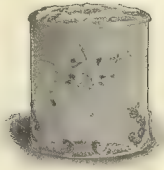


Diameter, 7¼ in.; height, 3¼ in.

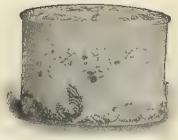


Size, 5 x 10¾ in ; depth, 1½ in.

Diameter, 5½ in.; height, 6 in.



Diameter, 4¼ in.; height, 5 in.



Diameter, 5½ in.; height, 4 in.

Case contains 48 pieces. **Average cost each, 16⅔c.** **Price per case, $8.00**

These Goods are Shipped at Buyer's Risk. No Charges for Cases or Packing.

WE DO NOT BREAK CASES.

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

ARMSTRONG'S No. 0 MACHINE FOR HAND OR POWER.

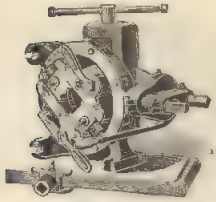


Fig. 1189.

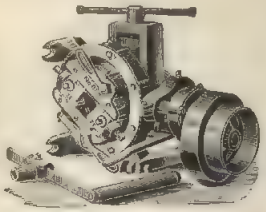


Fig. 1190.

Fig. 1191.

PRICE LIST.

	Hand Machine, ⅛ to 2 Inches.		Power Machine, ⅛ to 2 Inches.	
	Without Stand.	With Stand.	Power Attach. (no Countershaft).	Power Attach. & Countershaft.
No. 0. Machine without dies	$50 00	$60 00	$65.00	$ 93 00
No 0. Machine with pipe dies, ⅛ to 2 in. R. H.	60 00	70 00	75.00	103.00
No 0. Machine with bolt dies, ⅛ to 1½ R. H.	60.00	70.00	75.00	103.00
No. 0. Machine with pipe dies, ⅛ to 2 in. R. H., with stand	.....	.....	85.00	113.00

Extra dies same as used in No. 2 and No. 3 stocks, viz., ⅛ to 1 inch, No. 2 and 1¼ to 2 inch. No. 3.

SPEED AND WEIGHTS.

Speed of countershaft ..... Revolutions, 280
Weight of machine with dies. ..... Pounds, 135
Weight of machine stand. ..... Pounds, 60

	Hand Machine, 1 to 4 Inches.		Power Machine, 1 to 4 Inches.	
	Without Stand.	With Stand.	Power Attach. (no Countershaft).	Power Attach. & Countershaft.
No 00. Machine without dies	$105 00	$125 00	$130 00	$175 00
No 00. Machine with pipe dies 1 to 4 in. R. H.	125 00	145.00	150.00	195.00
No. 00. Machine with pipe dies, 1 to 4 in. R. H., with stand	.....	.....	170.00	215.00

Extra dies same as used in No. 3 and No. 6 stocks, viz., 1 to 2 inch, No. 3 and 2½ to 3 No. 6 3½ and 4 inch dies for machine use only at same list as No. 6 dies. Left hand same price as R. H dies

SPEED AND WEIGHTS.

Speed of countershaft ..... Revolutions, 300
Weight of machine and dies. ..... Pounds, 370
Weight of machine stand ..... Pounds, 198

No. 1 Pipe threading and cutting off machine for either hand or power. Cuts off and threads pipe from 1 to 3 inches inclusive. Geared 8 to 1
Price for hand, with right hand dies, 1 to 3 inches $115.00
Price for power, with right hand dies, 1 to 3 inches 170 00
An adjustable pipe rest is sent with each of these machines.
Weight of machine for power ..... Pounds, 250 Weight of machine for hand ..... Pounds, 225
Speed of countershaft ..... Revolutions, 225 Power attachment. ..... $ 15 00
Countershaft $40.00
No. 1½ Machine 1 to 4 for power ..... Each, 316.00
Weight ..... Pounds, 900 Speed of countershaft ..... Revolutions, 325
No. 3. Machine for power cuts and threads 1 to 6 inches inclusive
Price with dies as above and countershaft $560.00
Weight of machine ..... Pounds, 1,250

JARECKI PIPE MACHINE, No. 11.

1 1-2 TO 6 IN. QUICK OPENING, ADJUSTABLE DIES.

This style made to cut up to 12 inches.

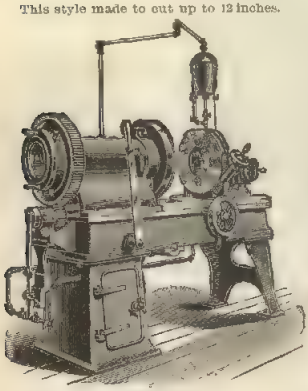


FIG. 1129.

Approximate weight, 2 650 lbs.
Floor space, 2 ft. 3 in. x 6 ft
Lubricate dies with lard oil.

Use great care when putting the dies into die head, to have die number correspond with slot number.

Can furnish extra dies for threading casing and line pipe. Also for English and Whitworth Standard Threads.

These pipe machines are without doubt the best and most convenient machines of their kind made. The dies are quick opening and adjustable. Each set of four pieces up to five inches, cuts two sizes of pipe, which is a great point in favor of the machine when new dies are required.

After pipe is threaded there is no backing off the dies as in the ordinary manner. All that is necessary is simply to open the dies and run die head back. If pipe is to be cut off, the dies will expand far enough to admit of pipe passing through them to the Cutting off Knife. When dies require sharpening they can be quickly removed and ground on any ordinary grindstone. The die head is also provided with an adjustable stop pin which is very convenient when a large number of threads of the same size are to be cut. Ordinarily every time a thread is cut the dies must be carefully reset. With this adjustable stop the dies are first set to the size to be threaded, then the adjustable stop moved and secured, which will only allow the cam to move to the point required to thread the proper size without the necessity of carefully resetting for every thread that is to be cut. The pump insures a steady supply of oil to lubricate dies and knife.

There are no loose bushings on the machine which, when required, cannot be found. Our machine has on back end of spindle an adjustable self centering chuck to center the pipe. Also the same on die head, to steady the pipe when being cut with cutting off knife. The gripping chuck is self centering, too, and very powerful.

Speed of Countershaft, 200 revolutions.

Diameter of pulleys, one tight and two loose, 14-in. for 4-in. belt.

Cone has 3 steps for 3¼-in. belt.

When threading 4-in. and smaller, always insert bushing or die supporter into die head to stiffen the dies. This machine has six changes of speed, without removing or replacing gears.

Price, No. 11 Pipe Machine, including Right-Hand Dies, 1 ¼ to 6-in., and Countershaft -					$550 00
" Extra dies, 5 sets Pipe Dies, Right or Left, at $4.50 per Set, 22 50.	One Set Cuts these two Sizes. 1½ & 2	One Set Cuts these two Sizes. 3" & 3	One Set Cuts these two Sizes. 3½ & 4	One Set Cuts these two sizes. 4½ & 5	
" Cutting-off Knife, -					

JARECKI PIPE MACHINE, No. 70 B.

¼ TO 3-INCH QUICK OPENING, ADJUSTABLE DIES.

With Electric Motor.

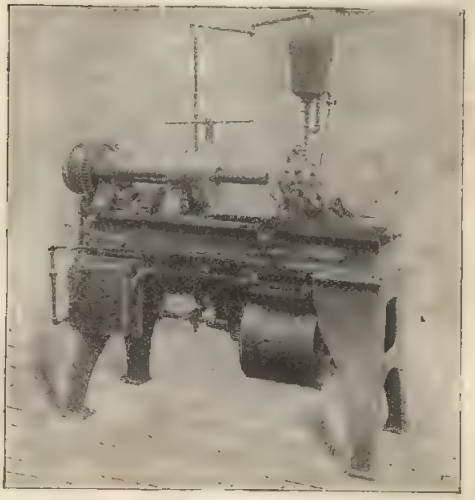


FIG. 1193.

No. 7 B PIPE MACHINE, INCLUDING RIGHT-HAND DIES, ¼ TO 3 IN., AND COUNTERSHAFT.

	One Set Cuts these two Sizes	One Set Cuts these two Sizes.	One Set Cuts these two Sizes.	One Set Cuts these two Sizes.	One Set Cuts these two Sizes.
{ Extra Dies 5 Sets, Pipe Dies Right or Left, at $3.50 per set.....$17 50					
	¼ and ⅜	½ and ¾	1 and 1¼	1½ and 2	2½ and 3

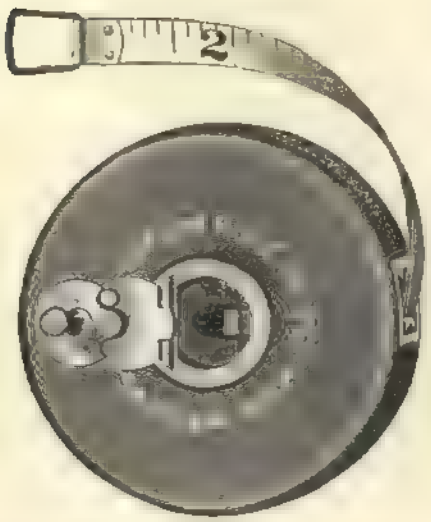
Cutting-off Knife . . . . .

Can furnish extra Dies for threading Casing and Line Pipe. Also for English and Whitworth Standard Threads.

These Pipe Machines are without doubt the best and most convenient machines of their kind made. The Dies are quick opening and adjustable. Each set of four pieces cuts two sizes of pipe, which is a great point in favor of the Machine when new Dies are required.

Prices on application.

Measuring Tapes.



Reliable.

Hard Leather Case, Nickel Plated Trimmings, Double Folding Flush Handle.

Steel Tape ⅜ In. Wide, Feet and 12ths on One Side, Links on Other Side.

Nos.	203	205	206
Code	Agagis.	Agagulis.	Agalliarde.
Feet,	50	75	100
Weight Each, lbs.,	⅞	1	1⅜
Each,	$7.20	10.40	12.80

One in a Box.

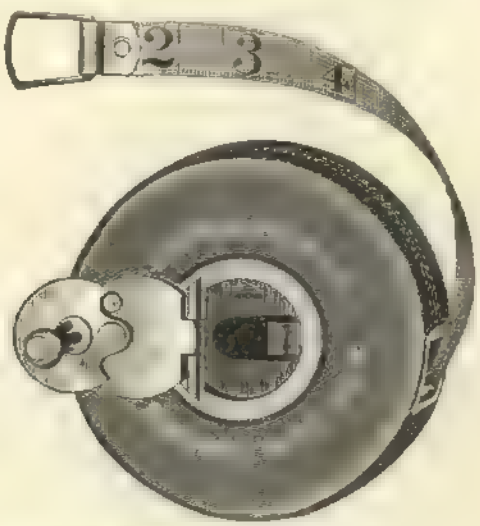
Challenge.

Hard Leather Case, Nickel Plated Trimmings, Folding Flush Handle.

Steel Tape ⅜ In. Wide, Feet and 12ths on One Side.

Nos.	263	265	266
Code	Agalactia.	Agalatita.	Agalaxie
Feet,	50	75	100
Weight Each, lbs.,	¾	⅞	1
Each,	$4.00	5.25	6.75

One in a Box.



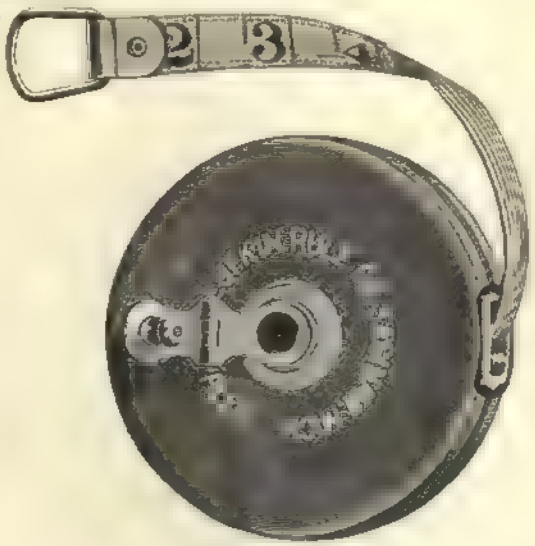
Metallic.

Hard Leather Case, Nickel Plated Trimmings, Double Folding Flush Handle.

Metallic Tape, ⅜ In. Wide, Feet, 12ths and Links on Both Sides.

Nos.	601L	603L	605L	606L
Code	Agamitaria.	Agamoid.	Agamuzado.	Agamuzar.
Feet,	33	50	75	100
Wt. Pr Doz., lbs.,	9	12	15	19
Per Dozen,	$28.80	34.80	43.20	54.00

One-Twelfth Dozen in a Box.



Metallic.

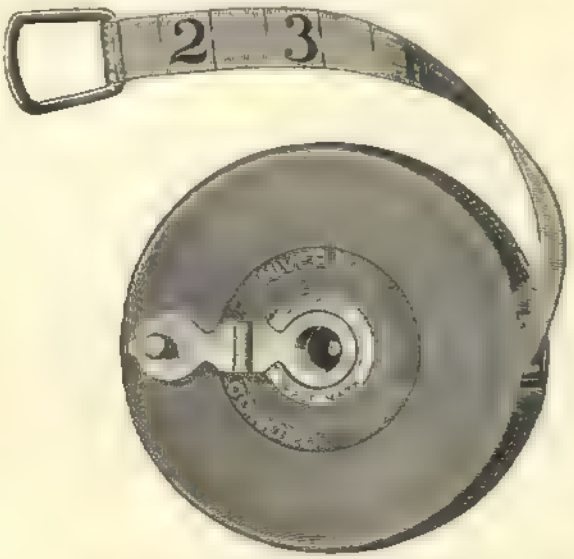
Hard Leather Case, Brass Trimmings and Folding Handle.

Metallic Tape, ⅝ In Wide, Marked in Feet and 12ths One Side Only.

Nos.	500	503	505	506
Code	Agalero.	Agalivaria.	Agalivo.	Agaloue.
Feet,	25	50	75	100
Wt. Pr Doz., lbs.,	9	12	15	19
Per Dozen,	$20.40	30.00	37.20	46.80

One-Twelfth Dozen in a Box.

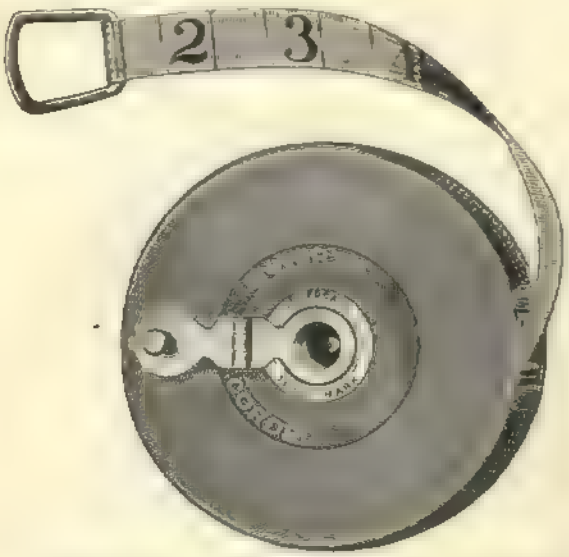
Measuring Tapes.



Bent Leather Case, Folding Handle.

Heavy Linen Corded Tape, ⅝ In. Wide.

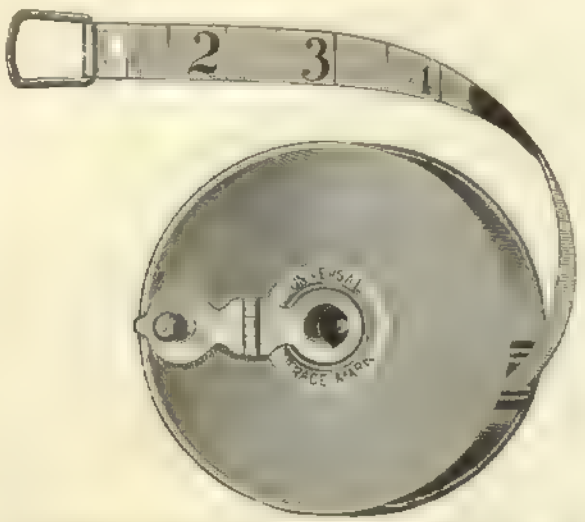
Nos.	943	945	946
Feet,	50	75	100
Weight Per Dozen, lbs.,	6	9	10
Per Dozen,	$16.00	18.00	20.00



Bent Leather Case, Folding Handle.

Heavy Linen Corded Tape, ½ In. Wide.

Nos.	930	933	935	936
Feet,	25	50	75	100
Wt. Per Doz., lbs.,	4½	6	7½	8
Per Dozen,	$11.00	14.00	16.00	18.00



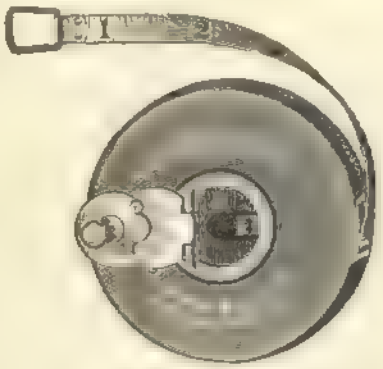
Ass Skin Case, Brass Bound, Folding Handle.

Cotton Tape, ½ In. Wide.

Nos.	710	713	715	716
Feet,	25	50	75	100
Wt. Per Doz., lbs.,	2½	4	5½	6½
Per Dozen,	$3 75	5.00	7.50	9 00

Half Dozen in a Box

Measuring Tapes.



Reliable Junior.

Hard Leather Case, Nickel Plated Trimmings, Double Folding Flush Handle.
Steel Tape ¼ In. Wide, in Feet and 12ths.

Code Agaricos. — Per Dozen

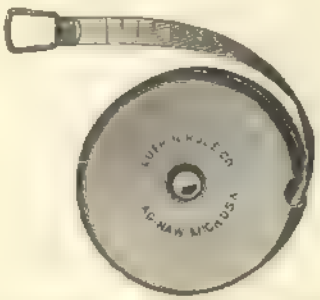
No. 100—25 Feet, Diameter of Case, 2¼ In., ... $45 00
Weight, 4½ lbs. Per Dozen.

Code Agarrocho.

No. 103—50 Feet, Diameter of Case, 2¾ In., ... 55.00
Weight, 6 lbs. Per Dozen
One-Twelfth Dozen in a Box.

BAKER & HAMILTON

Pocket Tapes.



Nickel Plated Steel Case, Spring Wind, Center Stop.
Linen Tape ¼ In. Wide.

Nos.	173	175	176
Code	Agastya.	Agatarchia.	Agatelepos.
Feet,	3	5	6
Weight Per Dozen, lbs.,	1	1½	1¾
Per Dozen,	$3.50	4.50	5.00

Nickel Plated, Steel Case, Spring Wind, Center Stop
Steel Tape ¼ In. Wide.

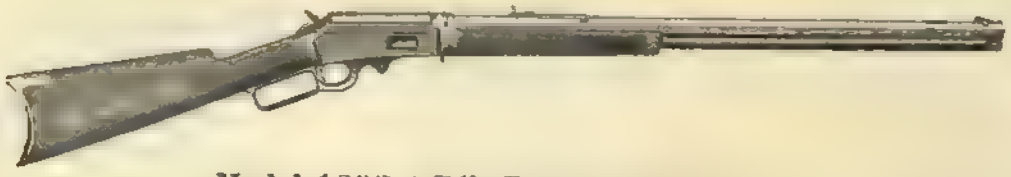
Nos.	143	145	146
Code	Agathoclem.	Agathode.	*Agathoerge.
Feet,	3	5	6
Weight Per Dozen, lbs.,	1	1½	2
Per Dozen,	$7.00	9.00	10.00

Code Agathyrsus. — Per Dozen

No. 165 Universal, Nickel Plated Case, Spring Wind, Center Stop, 60 In. Painted Linen Tape, ½ In. Wide, ... $2.00
Weight, 3¼ lbs. Per Dozen.
One Dozen in Counter Display Case.

Repeating Rifles.

Marlin.

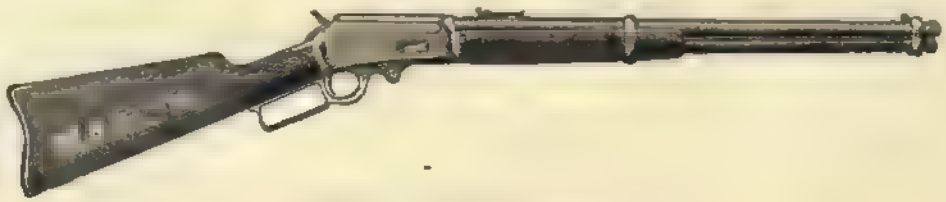


Model 1893 "B"—Black Powder Only.

Plain Stock, Steel Barrel, Blued Receiver.

Nos.	Code.	Caliber.	Barrel.	Magazine.	Weight Each, lbs.	Each.
2040	Desiturus.	32-40 Caliber, Center Fire.	26 In., Round.	Full, 10 Shots.	7	$13 35
2041	Desivalent	32-40 Caliber, Center Fire	26 In., Octagon	Full, 10 Shots	7½	14 00
2042	[illegible]	32-40 Caliber, Center Fire	28 In., Round	Full, 11 Shots	8	14 85
2043	Desperate	32-40 Caliber, Center Fire	28 In., Octagon	Full, 11 Shots.	7¾	16 00
2044	Desjungir	38-55 Caliber, Center Fire	26 In., Round	Full, 10 Shots	7	13 35
2045	Desiurk	38-55 Caliber, Center Fire	26 In., Octagon	Full, 10 Shots.	7½	14 00
2046	Desperado	38-55 Caliber, Center Fire	28 In., Round.	Full, 11 Shots.	8	14 85
2047	Desjunkers	38-55 Caliber, Center Fire	28 In., Octagon	Full, 11 Shots	7¾	16 00

"Take Down," $4.00 Extra.



Model 1893—Carbine.

Plain Trigger, Smokeless Steel Barrel, Walnut Stock.

Nos.	Code.	Caliber.	Barrel.	Magazine.	Weight Each, lbs.	Each.
2050	Deskaridge	25-36 Caliber, Center Fire	20 In., Round	12 Shots.	6	$15 50
2051	Desmerk	30-30 Caliber, Center Fire	20 In., Round	12 Shots	6	15 50
2052	Desolator	32 H. P. S. Caliber, Center Fire	20 In., Round	12 Shots	6	15 50
2053	Desolatory	32-40 Caliber, Center Fire	20 In., Round.	12 Shots	6	15 50
2054	Desolator	38-55 Caliber, Center Fire	20 In., Round	12 Shots.	6	15 50

Model 1894.

Plain Trigger, Steel Barrel, Walnut Stock.

Nos.	Code.	Caliber.	Barrel.	Magazine.	Weight Each, lbs.	Each.
2060	Desbidin	25-20 Caliber, Center Fire	24 In., Round.	Full, 14 Shots.	7	$13 35
2061	Desleidos.	25-20 Caliber, Center Fire.	24 In., Octagon.	Full, 14 Shots.	6⅞	14 40
2062	Desleidum	32-20 Caliber, Center Fire.	24 In., Round.	Full, 14 Shots	7¼	13 35
2063	Desleor	32-20 Caliber, Center Fire	24 In., Octagon.	Full, 14 Shots.	6⅞	14 40
2064	Desleres	38-40 Caliber, Center Fire	24 In., Round	Full, 14 Shots.	7¼	13 35
2065	Desleslear.	38-40 Caliber, Center Fire	24 In., Octagon.	Full, 14 Shots.	6⅞	14 40
2066	Desloridene	44-40 Caliber, Center Fire	24 In., Round.	Full, 14 Shots.	7¼	13 35
2067	Deslongus	44-40 Caliber, Center Fire	24 In., Octagon.	Full, 14 Shots.	6⅞	14 40

"Take Down," $4.00 Extra.

Target Rifles.

Colt's New Lightning Magazine.

	Each
No. 100—22 Caliber Rim Fire Cartridge, 24 In. Round Barrel, Weight 6¾ lbs.,	$16.00
No. 105—22 Caliber Rim Fire Cartridge, 24 In. Octagon Barrel Weight 6 lbs.,	16 00

Magazine Holds 2[illegible] Long Rim Fire Cartridges.

Winchester, Model 1902, Single Shot.

	Each
No. 110—22 Caliber Short or Long Rim Fire Cartridge 18 In. Round Steel Barrel, Weight 2¾ lbs.	$5.00

This Rifle can be taken down easily by unscrewing the Thumb Screw underneath the Arm, which releases the barrel and action from the stock

Model 1903.

	Each
No. 120—22 Caliber, 20 In. Round Barrel Automatic Repeating Hammerless Adapted to a New 22 Caliber Rim Fire Cartridge, Capacity of Magazine 10 Cartridges,	$25.00

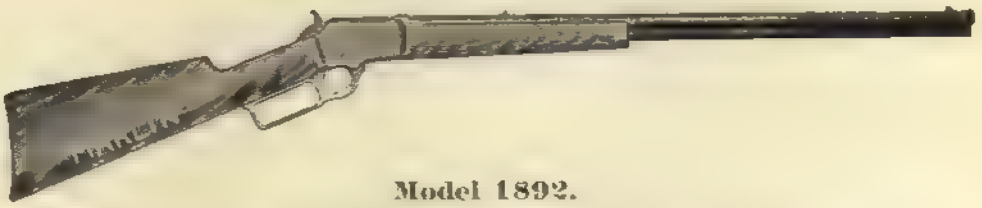
Hopkins and Allen.

Lever Action, Case Hardened Frame, Walnut Stock, Rubber Butt Plate

	Each
No. 922—22 Caliber Short or Long Rim Fire Cartridge, 22 In. Round Steel Barrel, Weight 4½ lbs.,	$6.00
No. 932—32 Caliber Short or Long Rim Fire Cartridge, 22 In. Round Steel Barrel, Weight 4½ lbs.,	6 00

Repeating Rifles.

Marlin.



Model 1892.

Plain Trigger, Steel Barrel, Walnut Stock.

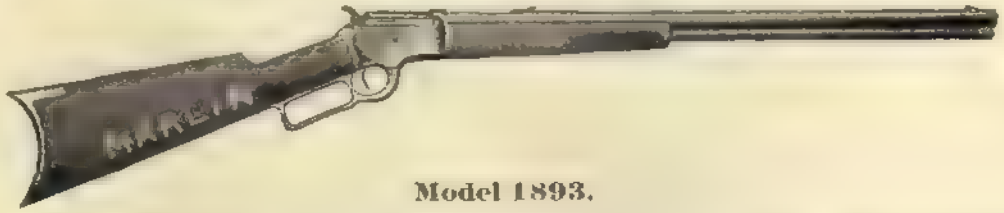
Full Magazine Holds 25 Short 20 Long, and 18 Long Rifle Cartridges.

Nos.	Code.	Caliber.	Barrel.	Magazine	Weight Each, lbs.	Each.
2000	Desimagino.	22 Caliber, Rim Fire.	24 In., Round.	Full	6	$13 75
2001	Destroponer	22 Caliber, Rim Fire	24 In., Octagon	Full	5¾	14 75
2002	Desmopongo.	22 Caliber, Rim Fire.	26 In., Round.	Full	6⅛	15 25
2003	Desinatone.	22 Caliber, Rim Fire	26 In., Octagon.	Full	5⅞	16 25
2004	Desimar.	22 Caliber, Rim Fire	28 In., Round	Full	6¼	16 75
2005	Desinchino.	22 Caliber, Rim Fire	28 In., Octagon	Full	6	17 75

Model 1892.

Plain Trigger, with Interchangeable Firing Pin, Rim or Center Fire, Steel Barrel, Walnut Stock, Full Magazine.

Nos.	Code.	Caliber.	Barrel.	Magazine.	Weight Each, lbs	Each.
2010	Desfindo	32 Caliber, Rim or Center Fire.	24 In., Round	17 Short or 14 Long	6¼	$13 75
2011	Desfiance.	32 Caliber, Rim or Center Fire.	24 In., Octagon	17 Short or 14 Long	6	14.75
2012	Desmar	32 Caliber, Rim or Center Fire.	26 In., Round.	17 Short or 14 Long	6⅛	15 25
2013	Desfire	32 Caliber, Rim or Center Fire.	26 In., Octagon	17 Short or 14 Long	6¼	16 25
2014	Desfido	32 Caliber, Rim or Center Fire.	28 In., Round.	17 Short or 14 Long	6⅜	16.75
2015	Desfigo	32 Caliber, Rim or Center Fire.	28 In., Octagon.	17 Short or 14 Long.	6⅜	17.75



Model 1893.

Plain Trigger, Steel Barrel, Walnut Stock.

Nos.	Code	Caliber.	Barrel.	Magazine.	Weight Each, lbs	Each.
2020	Desloimus.	25-36 Caliber, Center Fire.	26 In., Round.	Full, 10 Shots.	7	$16.50
2021	Desirasses.	25-36 Caliber, Center Fire.	26 In., Octagon.	Full, 10 Shots.	7⅛	17.00
2022	Desiregnus	25-36 Caliber, Center Fire	28 In., Round	Full, 11 Shots.	7¼	18 00
2023	Desirado.	25-36 Caliber, Center Fire.	28 In., Octagon.	Full, 11 Shots.	7⅜	18.50
2024	Desiciar	30-30 Caliber, Center Fire.	26 In., Round	Full, 10 Shots	7	16 50
2025	Desimentar	30-30 Caliber, Center Fire.	26 In., Octagon	Full, 10 Shots.	7⅛	17 00
2026	Desiteas	30-30 Caliber, Center Fire	28 In., Round	Full, 11 Shots.	7¼	18 00
2027	Desirosis	30-30 Caliber, Center Fire	28 In., Octagon	Full, 11 Shots.	7⅜	18 50
2028	Desistamos.	32 Caliber, H P.S., Center Fire.	26 In., Round.	Full, 10 Shots.	7	16.50
2029	Desisheen	32 Caliber, H P S., Center Fire	26 In., Octagon	Full, 10 Shots.	7⅛	17 00
2030	Desistelle	32 Caliber, H P S., Center Fire	28 In., Round	Full, 11 Shots	7¼	18 00
2031	Desistida.	32 Caliber, H.P.S., Center Fire.	28 In., Octagon.	Full, 11 Shots.	7⅜	18.50
2032	Desistidos.	32-40 Caliber, Center Fire.	26 In., Round.	Full, 10 Shots.	7	16.50
2033	Desistrus	32-40 Caliber, Center Fire	26 In., Octagon	Full, 10 Shots.	7⅛	17.00
2034	Desstive	32-40 Caliber, Center Fire	28 In., Round	Full, 11 Shots	7¼	18 00
2035	Desstro	32-40 Caliber, Center Fire.	28 In., Octagon	Full, 11 Shots.	7⅜	18 50
2036	Desstrut	38-55 Caliber, Center Fire	26 In., Round	Full, 10 Shots.	7	16 50
2037	Desstus	38-55 Caliber, Center Fire	26 In., Octagon	Full, 10 Shots	7½	17.00

"Take Down," $4.00 Extra.

Repeating Rifles.

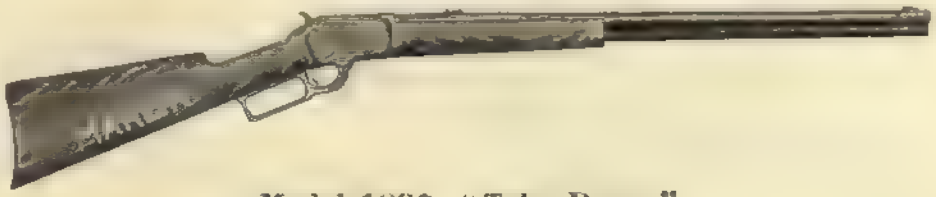
Marlin.

Model 1895.

Plain Trigger, "Special Smokeless Steel" Barrel, Walnut Stock.

Nos.	Code	Caliber.	Barrel.	Magazine.	Weight Each, lbs.	Each
2070	Desitndels.	38-56 Caliber, Center Fire.	26 In., Octagon.	Full, 9 Shots.	8⅝	$17 50
2071	Desiindo.	40-65 Caliber, Center Fire.	26 In., Octagon.	Full, 9 Shots.	8⅝	17 50
2072	Desliviar.	40-82 Caliber, Center Fire.	26 In., Octagon.	Full, 8 Shots.	8¼	17 50
2073	Desteolado	45-70 Caliber, Center Fire.	26 In., Octagon.	Full, 9 Shots.	8⅝	17 50
2074	Desnoivar.	45-90 Caliber, Center Fire.	26 In., Octagon.	Full, 8 Shots.	8½	17 50

"Take Down," $4.00 Extra.



Model 1897—"Take Down."

Plain Trigger, Steel Barrel, Walnut Stock.

Nos.	Code	Caliber.	Barrel.	Magazine.	Weight Each, lbs.	Each.
2080	Desnudo.	22 Caliber, Rim Fire, Short.	24 In., Round.	Full, 25 Shots.	5⅛	$15 35
2081	Desnuque.	22 Caliber, Rim Fire, Short.	24 In., Octagon.	Full, 25 Shots.	5⅛	17 00
2082	Desdichado	22 Caliber, Rim Fire, Short.	26 In., Round.	Full, 25 Shots.	5¾	16 85
2083	Desconsolado.	22 Caliber, Rim Fire, Short.	26 In., Octagon.	Full, 25 Shots.	5¾	18 50
2084	Desvalido.	22 Caliber, Rim Fire, Long.	24 In., Round.	Full, 25 Shots.	5⅛	15 35
2085	Desvarar.	22 Caliber, Rim Fire, Long.	24 In., Octagon.	Full, 25 Shots.	5⅛	17 00
2086	Desolately.	22 Caliber, Rim Fire, Long.	26 In., Round.	Full, 20 Shots.	5¼	16.85
2087	Desolatory	22 Caliber, Rim Fire, Long.	26 In., Octagon.	Full, 20 Shots.	5¾	18 50
2088	Desolavan.	22 Caliber, Rim Fire, Long Rifle	24 In., Round.	Full, 18 Shots.	5⅛	15.35
2089	Desolavate.	22 Caliber, Rim Fire, Long Rifle.	24 In., Octagon.	Full, 18 Shots.	5⅛	17 00
2090	Desoldado	22 Caliber, Rim Fire, Long Rifle	26 In., Round	Full, 18 Shots.	5¾	16 85
2091	Desoldara.	22 Caliber, Rim Fire, Long Rifle.	26 In., Octagon.	Full, 18 Shots.	5¾	18.50

Half Octagon Barrel same Price as Octagon Barrel.

Half Magazine same Price as Full Magazine.

Shot Gun Butt Plate same Price as Regular Butt Plate.

Model 1897 has Rubber Shot Gun Butt Plate. All Other Models, Rifle Butt Plate.

10-INCH STROKE, SLOTTER.

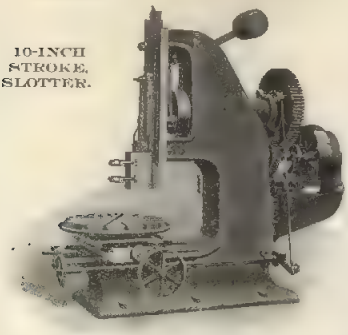


FIG. 2418.

"NEW HAVEN" TOOLS.

Iron Planers, planing 5 and 6 ft. x 24 in. square, 6 and 8 ft. x 28 in. square, 8 and 10 ft. x 34 in. square, 10 and 12 ft. x 40 in. square, and 50 and 60 in. square to plane from 10 to 20 ft. in length. 10-in. stroke, slotter.

34-INCH SQUARE PLANER.

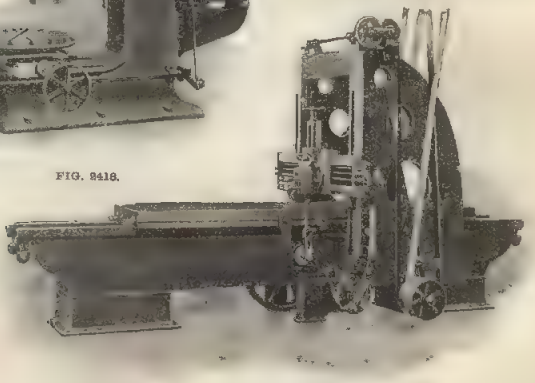


FIG. 2419.

40-INCH SQUARE PLANER.

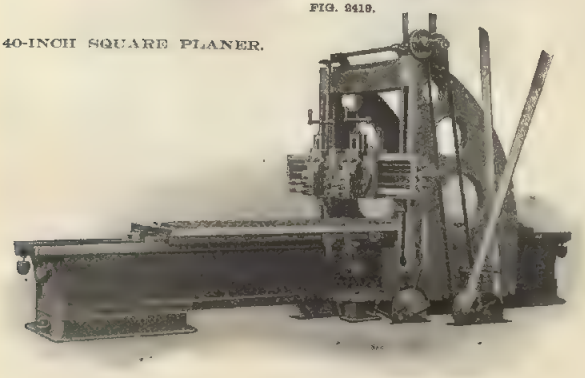


FIG. 2420.

SLOTTING MACHINES 6-INCH TO 18-INCH STROKE.

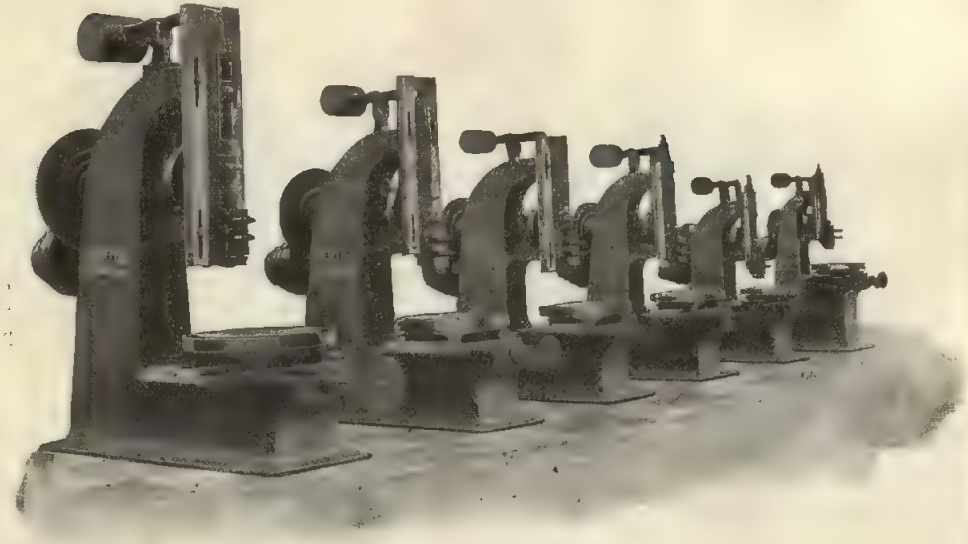


FIG 2421.

SLOTTING MACHINES.

To meet the requirements of the modern high speed tool steel, the Slotting Machines illustrated herein have been increased in weight and general design about thirty per cent. All sizes have relief tool apron and quick return motion.

All the different sizes above 10″ stroke of the fixed type of machine have an adjustable ram guide. Circular tables of machines are graduated and have a full bearing on the lower saddle, the worm wheel being set in the saddle, and the tee slots for clamping the work have ample metal over wing of slots. Carriages have quick acting variable feed motion in all directions.

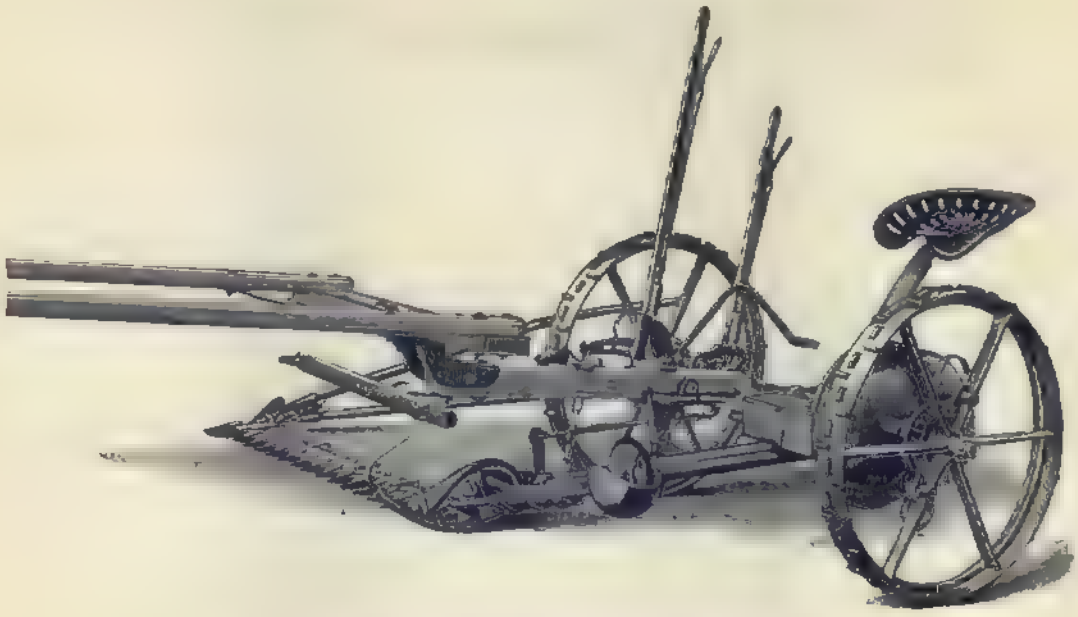
SIX-INCH SLOTTING MACHINES.	8-in. and 10-in Machines.		12-in. and 14-in Machines		16, 18 and 20-in. Machines.		
Maximum stroke of machine	6½″	8½″	10½″	12½″	14½″	16½″	18½″	20½″
In and out adjustment	10⅞″	11¼″	16⅜″	22½″	28 ″	29½″	31 ″	33⅞″
Cross adjustment	14 ″	12 ″	13¾″	14 ″	16 ″	21 ″	24 ″	28 ″
Diameter of circular carriage over tee slots	17½″	19½″	22 ″	25½″	30 ″	32 ″	34 ″	38 ″
Diameter of circular carriage over all	22¼″	24½″	27¼″	31 ″	36 ″	39 ″	41 ″	46¼″
Distance from face of ram to frame	12 ″	15½″	21½″	27 ″	29½″	31½″	33⅝″	37½″
Will admit work in height	10¼″	11¼″	13 ″	15 ″	19¾″	22½″	25 ″	26 ″

The six-inch machine does not have an adjustable ram guide.

Neither of the eight or ten-inch machines are fitted with an adjustable ram guide.

All machines above ten-inch stroke have adjustable ram guide.

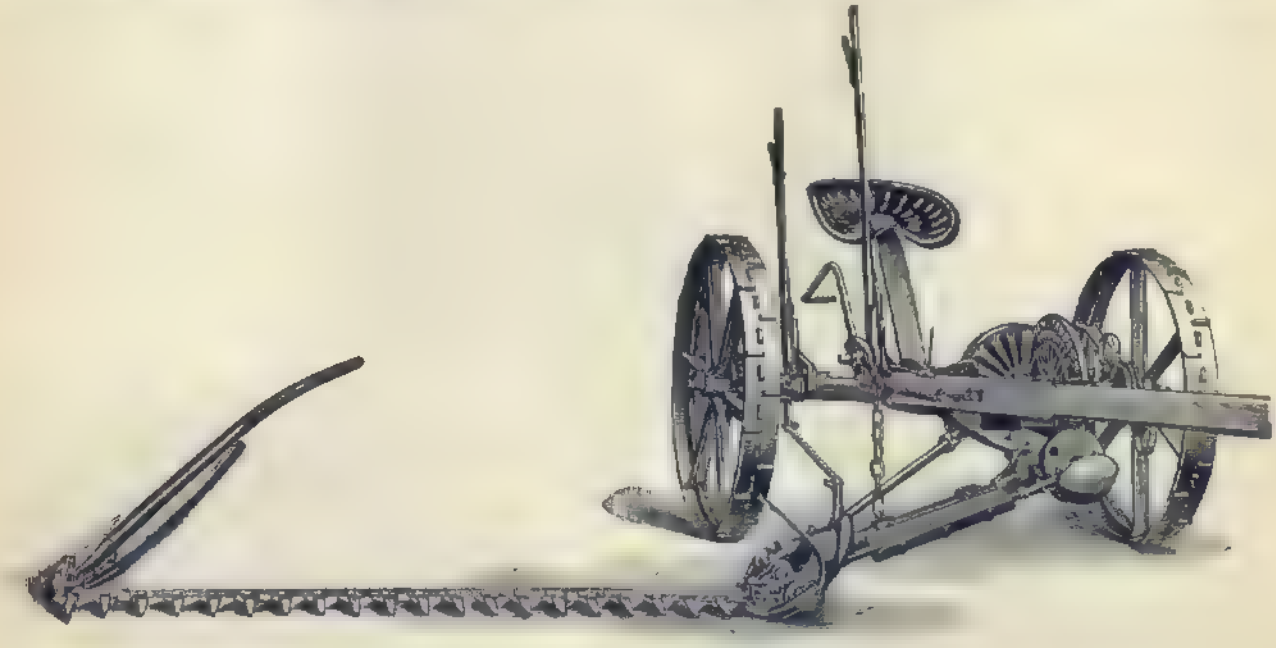
WORCESTER BUCKEYE MOWERS.



One Horse New Standard Gear Buckeye Mower.

This mower is built to cut 3½ and 4 feet.

More than enough saved in first year than the difference between the price of the best and the poorest — the Worcester Buckeye Mower is substantially as good a machine after ten years of work as it was when new — the maker of a poor mower can afford to sell his mower at less than cost — he makes his money out of the repairs. The farmer in the end pays him a big profit. Buy only the genuine Worcester Buckeye Mower.



Two Horse New Standard Gear Buckeye Mower.

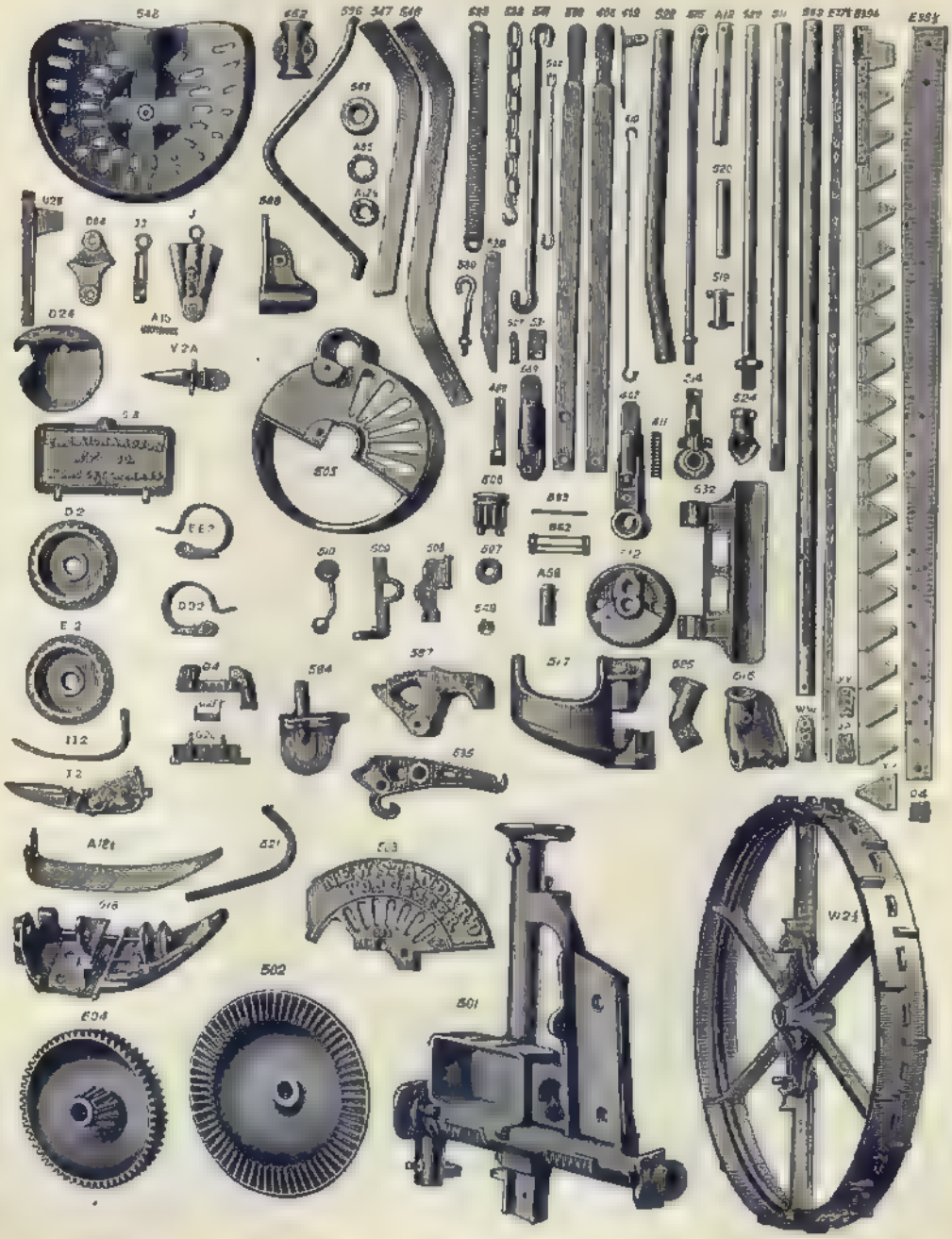
This mower is built to cut 4½, 5 and 6 feet.

Prices on application. Don't fail to send for complete catalogues. Prices will compare favorably with those of other first-class machines.

NEW STANDARD BUCKEYE MOWERS.

4½, 5 and 6 feet.

Net Price List of Duplicate Parts.



501	Main Frame	$8.00	513	Tool Box Cover	$0.25	524	Back Brace Socket, rear	$0.35
502	Bevel Gear	2.50	514	Pitman Box, complete	1.50	525	Back Brace Clip, front	.50
503	Bevel Gear Guard	.50	515	Pitman Rod	.75	526	Gag Lever	.25
504	Spur Gear	2.00	516	Hinge Bar Socket	.75	527	Gag Lever Pin	.10
505	Spur Gear Guard	1.25	517	Hinge Yoke	2.50	528	Lifting Chain	.50
506	Spur Pinion	.60	518	Inside Shoe, 4½ and 5 ft.	2.50	529	Lifting Spring	.75
507	Clutch Collar	.20	518A	Inside Shoe, 6 ft.	2.50	530	Lifting Spring Hook Bolt	.15
508	Shipper Stand	.20	519	Short Hinge Pin	.15	531	Lifting Spring Bracket	.10
509	Shipper Clutch	.20	520	Upper or Lower Hinge Pin	.25	532	Pitman Guard	1.00
510	Shipper Lever	.20	521	Inside Divider Rod	.25	533	Bar Rest	.25
511	Crank Shaft (naked)	1.25	522	Hinge Coupling Shaft	1.50	534	Lever Axle	.75
512	Crank Balance (plain)	.75	523	Back Brace and Nut	1.25	535	Lever Arm	.50

NEW STANDARD GEAR BUCKEYE MOWER.

4½, 5 and 6 feet.

Net Price List of Duplicate Parts.

536	Foot Lever	$0 25
537	Tilter Ratchet	.50
538	Tilter Lever Handle	.50
539	Tilter Pawl Socket	.15
540	Tilter Trip Rod	.10
541	Tilter Hook Connection	.25
A	Axle Shaft, 4½ and 5 ft. (naked)	2 50
A2½	Axle Shaft, 6 ft (naked)	3 00
A43	Axle Sleeve, 4½ and 5 ft.	.10
A43	Axle Sleeve, 6 ft.	.10
W42A	Drive Wheel, 4½ and 5 ft	6 00
545	Drive Wheel 6 ft.	7 00
546	Main Seat Spring	.25
547	Seat Spring Leaf	.60
548	Seat	1 00
549	Oil Cup Cover	.05
550	Pole	3.00
46	Lifting Lever Handle	.50
107	Lifting Lever Handle Socket	.15
47A	Lifting Lever Pawl or Tilt Pawl	.20
109	Lifting Lever Hand Trip	.20
110	Lifting Lever Trip Rod	.10
111	Lifting Lever Pawl Spring	.10
457	Clamp Collar, complete	.30
A12	Spur Gear Stud	.50
A12½	Spur Gear Stud Washer	.05
A35	Axle Washer	$0 05
D24	Crank Fender	1 00
D1	Evener Plate	.20
D12	Left Hand Driving Ratchet	.75
E2	Right Hand Driving Ratchet	.75
DH12	Right Hand Pawl Spring	.40
EH2	Left Hand Pawl Spring	.40
I2	Outside Shoe	1 75
V4	Finger	.25
U2B	Scythe Head	.40
VV	Knife Sections, each	.06
WW	Scythe Button	.10
O4	Chafe Plate with Bolt	.20
II	Outside Shoe Runner	.40
	Track Clearer Sticks, each	.25
O4	Shoe Cap	.15
O4I	Inside Shoe Cap Hinge	.15
O4H	Shoe Cap Hinge Spring	.10
VV	Guard Finger Plate	.06
VA	Inside Shoe Plate (2 holes)	.06
A18½	Inside Shoe Runner	.50
D37	Scythe Rod, Drilled, 6 ft.	2 00
F37	Scythe Rod, Drilled, 5 ft.	1.75
F37½	Scythe Rod, Drilled 4½ ft.	1.50
D38	Finger Bar, Drilled, 6 ft. (naked)	6.00
F38	Finger Bar, Drilled, 5 ft. (naked)	5.00
E38½	Finger Bar, Drilled, 4½ ft. (naked)	$4 50
B39	Scythe U2B Head, 24 sections	3 50
B37½	Scythe U2B Head, 20 sections	3 00
B36	Scythe U2B Head, 18 sections	2 75
A50	Crank Pin	75
A58½	Cap Screw for A58	.10
O—	Roller Bearing Cage	30
B—	Roller Spindles, each	02
	Finger Bolts (steel)	.05
	Track Clearer Bolt	.05
	Bolts, common sizes, with Thimble	.08
	Rivets, short, per lb.	.15
	Rivets, long, per lb.	.20
	Oil Can	.15
	Cold Chisel	.25
	Punch	.10
	Linch-pin	.05
	Small Spring Cotters	.03
	Set Screws	.10
	Screw Wrench	.35
	Evener	.75
	Whiffletrees, each	.50
	Neck Yoke	1.00

NEW STANDARD GEAR BUCKEYE MOWER NO. 3.

3½ and 4 feet.

Net Price List of Duplicate Parts.

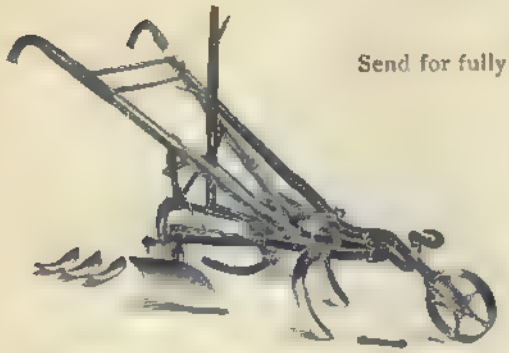
301	Main Frame	$7.00
302	Bevel Gear	2.00
303	Bevel Gear Guard	.50
304	Spur Gear	1 50
305	Spur Gear Guard	1 00
306	Spur Pinion	.50
307	Clutch Collar	.20
508A	Shipper Stand	.25
509A	Shipper Clutch	.25
510A	Shipper Lever	.25
311	Crank Shaft	1 00
312	Crank Balance	.60
313	Tool Box Cover	.25
713	Pitman Box	.50
301	Wood Pitman Rod, complete	1 50
316A	Hinge Bar Socket	.75
317A	Hinge Yoke	1.75
318A	Inside Shoe	1 00
319A	Shoe Pins	.15
320	Hinge Pin	.25
321	Inside Shoe Divider Rod	.25
322A	Hinge Bar	1 75
323	Back Brace and Nut	1 25
325	Back Brace Clip Front	.50
326	Grip Lever	.25
328	Lifting Chain	.50
329	Lifting Spring	.50
330	Lifting Spring Hook Bolt	.15
333	Bar Rest	.25
334	Lever Axle	.75
335	Lever Arm	.50
336	Foot Lever	.25
537A	Tilter Ratchet	$0 50
538A	Tilter Lever Handle	.75
739	Tilter Level Hand Trip	.15
748	Tilter Level Pawl	.15
540	Tilter Trip Rod	.10
541A	Tilter Hook Connection	.25
342	Axle Shaft	2 25
354	Drive Wheel	5.00
737	Oil Cups	.10
407A	Lifting Lever	.50
4.9A	Lifting Lever Trip Rod	.10
457	Clamp Collar (2 pieces)	.30
A12	Spur Gear Stud	.50
F35	Axle Washer	.05
E24A	Crank Fender	1.00
350	Left Hand Driving Ratchet	.75
351	Right Hand Driving Ratchet	.75
DD3	Right Hand Pawl Spring	.40
EB3	Left Hand Pawl Spring	.40
353	Stub Socket	1 25
I5	Outside Shoe	1 75
V	Finger	.25
716	Scythe Head	.40
777	Scythe Button	.10
554	Chafe Plate, small	.15
554½	Chafe Plate, large	.15
358	Shoe Cap, front	.25
359	Shoe Cap, rear	.25
300	Pitman Rod Fender	.75
BH8½	Inside Shoe Runner	.50
CH10	Scythe Rod, Drilled, 4 ft.	1.25
CH14	Scythe Rod, Drilled, 3½ ft.	1.00
DH16	Finger Bar, Drilled, 4 ft.	$4 00
DH14	Finger Bar, Drilled, 3½ ft.	3.50
BH16	Scythe, No. 716 Head, 16 sections	2.25
BH14	Scythe, No. 716 Head, 14 sections	2.00
561	Crank Pin Bushing	.35
J	Track Clearer Iron	1 00
JJ	Track Clearer Slide	.25
	Track Clearer Bolt and Thimble	.15
770	Pitman Rod Wrench	.10
784	Lock Nut	.05
785	Pitman Rod Ratchet Nut	.05
714	Pitman Rod Clamp, crank end	.25
77	Pitman Rod Clamp, scythe end, spring side	.25
774	Pitman Rod Clamp, scythe end, stop side	.25
550	Tilter Pawl Spring	.05
A 5	Track Clearer Spring or Shipping Spring	.05
555	Ratchet Nut Spring	.05
	Thill, right hand	1 50
	Thill, left hand	1 50
	Cross Bar to Thills	1 25
	Stub to Thills	.75
	Whiffletree	.50
	Finger Bolts, steel	.05
	Bolts, common sizes	.08
	Section Rivets, per lb.	.20
	Scythe Head Rivets, per lb.	.20

The parts of One-Horse New Standard Gear Mower No. 3 not mentioned above are same price, and will interchange with parts of the New Standard Gear Two-Horse Mower.

PLANET JR. FARM AND GARDEN TOOLS.

Horse Tools.

Send for fully illustrated catalogue, mailed on application.



Planet Jr. No. 8 Horse Hoe.

Planet Jr. Twelve-Tooth Harrow.

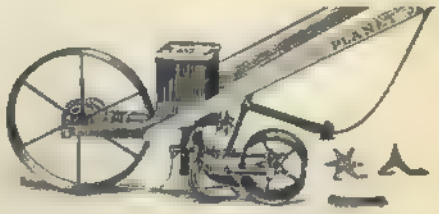
	Our net price.
No. 8 Horse Hoe and Cultivator, complete	$8.50
" 7 " " " " "	8.00
" 9 " " " " "	7.40
" 5 " " " " "	6.50
Nine Tooth Horse Hoe	15.00
" " Attachment	.oc
No. 9 Plain Cultivator and Wheel	6.10
" 9 " " no "	5.35
" 4 " and	5.x
" 4 " " no "	4.25
White Potato Digger	16.00

	Our net price.
Twelve Tooth Harrow, complete	$8.50
" " without pulverizer	6.90
" " " " or wheel	5.80
" " with No. 9 wheel	6.55
" " without lever expander or wheel,	4.80
" " Strawberry Runner Attachment,	1.75
Double Celery Hiller	14.00
Single " "	11.00
No. 1 Orchard and Universal Cultivator (cuts 5 ft.)	34.00
" 41 " " " "	34.00
" 45 Riding Cultivator and Harrow	30.00

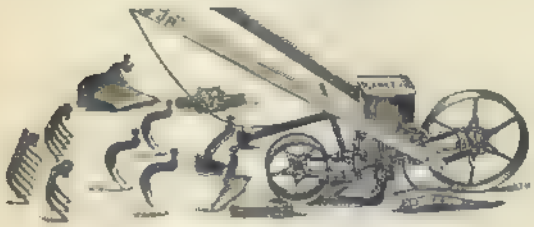
PLANET JR. SEED SOWERS.

No. 3 Hill and Drill Seeder.

New and valuable improvements.



No. 5 Hill and Drill Seeder.



No. 4 Hill and Drill Seeder.

No. 1 Combined Drill Seeder.

	Our net price.
No. 3 Hill and Drill Seeder	$12.50
" 3 " " "	10.50
" 1 " " with Rakes	11.50
" 1 " " less "	10.50
" 4 " plain	8.50
" 25 " and Double Wheel Hoe	13.50

	Our net price.
No. 1 Combined Drill Seeder with Rakes	$10.00
" 1 " " " less "	9.50
" 2 Drill Seeder	7.50
*Double Mouldboard Plow	1.25
*Onion Harvester	1.00

*Fit Combined Drills and Wheel Hoes.

Large Descriptive Catalogue of Planet Jr. Goods Mailed on Application.

PLANET JR. GARDEN TOOLS.

Planet Jr. No. 16 Single Wheel Hoe.

Planet Jr. No. 12 Double Wheel Hoe.

Planet Jr. No. 11 Double Wheel Hoe.

Planet Jr. No. 17 Single Wheel Hoe.

No. 11	Double Wheel Hoe, complete	Our net price, $9.00
" 12	" " "	" 7.00
" 15	" " " plain (hoes only)	" 4.75
" 16	Single Wheel Hoe	" 5.85
" 17	" "	" 5.00

No. 17½	Single Wheel Hoe	Our net price, $4.50
" 18	" " " hoes only	" 3.50
Firefly Garden Plow		" 7.35
Grass Edger		" 6.00
Breck's Garden Cultivator		" 3.75

Planet Jr. Grass Edger.

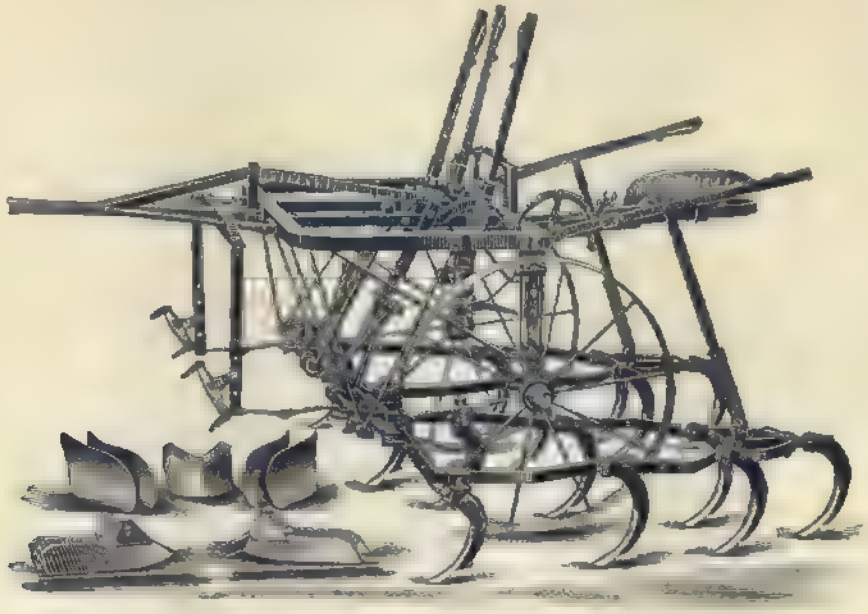
Firefly Garden Plow.

PLANET JR. EXTRAS.

1¾ x 8	inch Steels	Our net price, $0.08	10 inch	Sweep and Bolt	Our net price, $0.35
1¾ x 8	" "	" .09	12 "	" "	" .40
2¼ x 8	" "	" .10	15 "	" "	" .45
3 x 8	" "	" .11	18 "	" " "	" .55
4 x 8	" "	" .12	6 "	Hoe and Bolt	" .40
1¾ x 10	" "	" .12	10 "	" " "	" .50
1¾ x 10	" "	" .13	10 "	Furrower	" .75
2¼ x 10	" "	" .15	15 "	"	" 1.10
3 x 10	" "	" .17	20 "	" with wings	" 1.75
4 x 10	" "	" .20	20 "	" " " and renwl. pt.	" 2.00
6 inch Side Steels, each		" .50	Ridging Steels, each		" 1.10
7 " " "		" .60	Roller		" 1.75
7 " Shove Steel		" .25	Reversed Rake		" .50
8 " " "		" .30	Pulverizer		" 2.00
Bolts		" .01¼	Pulverizer for Harrow, special		" 1.75
8 inch Sweep and Bolt		" .30	Leveller		" 1.50

Large Descriptive Catalogue of Planet Jr. goods Mailed on Application.

PLANET JR. RIDING CULTIVATOR.



No. 72 Planet Jr. Riding Cultivator.

The manufacturers of Planet Jr. Implements have been making two-row cultivators for several seasons past and have found a great demand for an improved tool of this class, which will do thorough work in rows of irregular width.

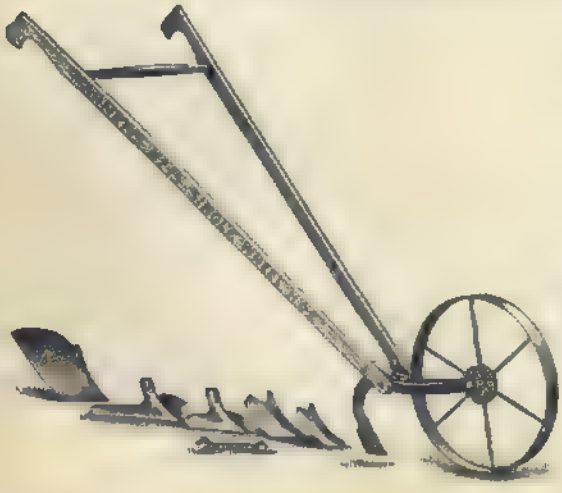
With the improved No. 72 we complete the cultivation of two rows at one passage, at all widths from 28 to 44 in. inclusive, and the implement is especially built to do this when the rows are at irregular distances apart. The changes for rows planted at different distances apart are made in a few minutes. The operation of the levers is easy and makes the working of two irregular rows an easy problem.

Think of the saving made in cultivating perfectly, two rows of potatoes, beans or corn, or any crop planted in rows not over 44 inches apart, at a single passage. This means double speed at single cost, and the arrangement of the fourteen teeth is such that all the ground is well tilled and no open furrows are left next to the crop.

No. 72 Planet Jr. Two Row Pivot Wheel Cultivator complete . . . . . Our net price, $50.00

Large Descriptive Catalogue of Planet Jr. goods Mailed on Application.

BRECK'S GARDEN PLOW, HOE AND CULTIVATOR.



This new and attractive implement is especially designed for the farmer's garden work, though it offers to everyone with either field or garden a cheap and effective tool for all hand wheel hoe operations.

The Tools are as Follows:

A large garden plow, useful from spring to fall for opening, covering and for plowing to and from various crops.

Ten inch sweep. Is a perfect weed killer for ten inch rows or over.

Six inch sweep. Completes the work between six inch rows at one passage and is useful in wider rows.

Four inch cultivator tooth. For deep cultivation.

Two inch cultivator tooth. For still deeper work.

The great variety and fine shape and quality of the tools make the implement valuable for many kinds of work. It is strong, well made and can be quickly set so as to be useful whether in the hands of a man or woman, boy or girl.

Our net price, each $3.75

Laib Co. 482½ Louisville Ky.

WAGENER IMPROVED DUPLEX STEAM PUMP.

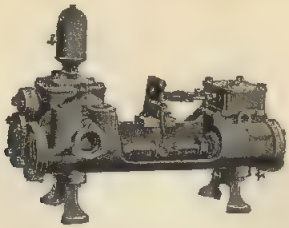


FIG. 1184.

Some Points of Merit.

Particular attention is called to the following improvements which are to be found only on the

Wagener Pumps.

The plain slide valve is used and can be set from the outside. No nuts or bolts to get loose in the steam chest.

The stuffing boxes are of the screwed type, and can not be set up wrong, as is the case with "bolts and studs."

The piston and plunger rods are separated at the cross head, and held firm by lock nuts, hence either end can be removed without disturbing the other.

The piston is of the regular locomotive pattern.

The levers and rocker arms are of steel and are about the same as used by all reliable pump makers.

The water cylinders are removable, this being the part of any pump subjected to the greatest wear. It can be quickly taken out or turned around should it show any tendency to wear.

The water valves are all above the center of the plungers and can be taken out of the pump by merely removing the cover over them, and rubber valves used on the same seat as brass, and vice versa, and without the use of any tools whatever.

Specifications and Price-List of the Wagener Duplex Steam Pumps.

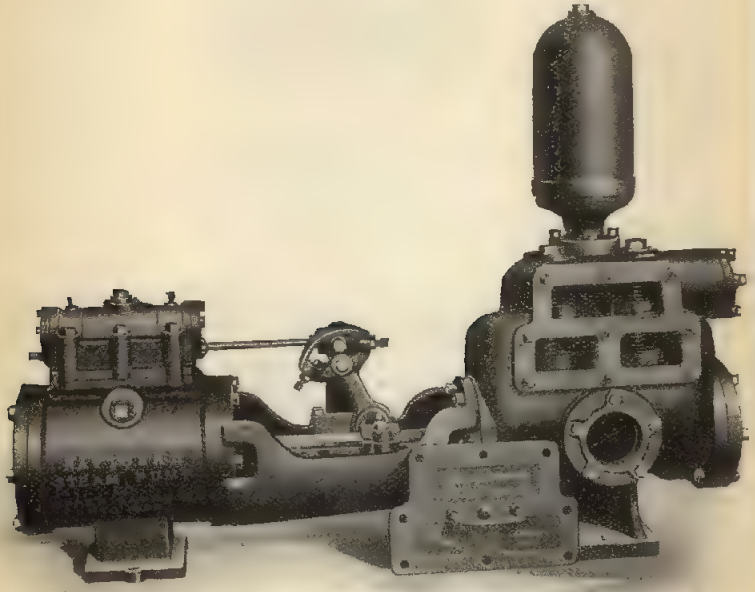
Number	Diameter of Steam Cylinders	Diameter of Water Plungers	Length of Stroke	Displacement in Gals per Stroke of one Plunger	Proper Strokes per Min., one Plunger, Varying with Kind of Work and Pressure	Gallons Delivered per Minute by Both Plungers at a Stated Number of Strokes	Maximum Horsepower Boiler Pump will Supply	Diam of Pipes for Medium Lengths to be Increased as Length Increases. Steam	Exhaust	Suction	Discharge	PRICE
2	2½	1½	2	.03	100 to 300	4 to 12	30	¾	¾	1	¾	$ 45 00
3	3	2	3	.04	100 to 250	8 to 20	50	¾	¾	1¼	1	60.00
4	3½	2½	4	.07	100 to 200	12 to 24	75	¾	¾	1½	1¼	80.00
5	4½	2¾	5	.10	100 to 200	20 to 40	150	1	1	2	1½	98 00
6	5¼	3½	6	.20	100 to 150	40 to 80	300	1	1	2½	2	125.00
7	6	4	7	.38	75 to 150	55 to 110	450	1	1¼	3	2½	150.00
8	7	4½	7	.54	75 to 150	75 to 150	600	1¼	1½	3½	3	230.00
9	8	5	10	.85	75 to 125	125 to 215	800	1½	2	4	3	320.00
10	10	6	12	1.47	75 to 125	225 to 365	1200	2	2½	5	4	400.00
11	12	6	12	1.47	75 to 125	225 to 365		2½	3	6	5	550 00
12	12	7	12	1.90	75 to 125	275 to 490		2½	3	6	5	600.00
13	12	8	12	2 61	75 to 125	370 to 625		2½	3	7	6	650.00

Prices include lubricator, air cocks and wrenches. Piston Pumps to No 5, inclusive, have composition water cylinder without extra charge. For fitting pumps with brass plungers, glands and piston rods, an additional charge of from 5 percent to 15 percent.

Laib Co.
483
Louisville Ky

NATIONAL HIGH DUTY AND MINE PUMPS.

SPECIAL MINE PUMP.



$9 \times 5\frac{1}{2} \times 10$.

FIG. 1185.

Laib Co.
483½
Louisville Ky

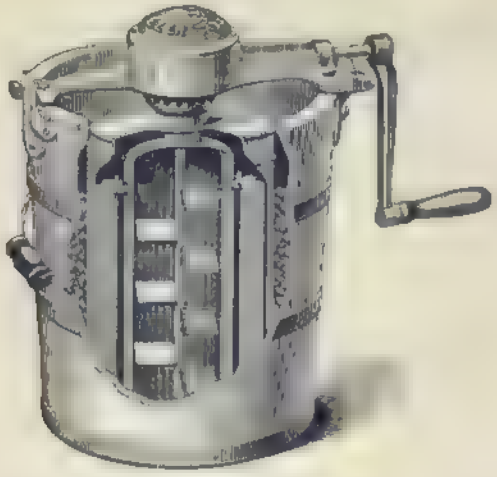
NATIONAL HIGH DUTY AND MINE PUMPS.

These pumps are especially designed for extreme pressures, and made with hand hole plates on the side, so arranged that any valve in the pump can be reached in five minutes. In our mine pumps we do away with the valve seat stems entirely, and use a heavy tobin bronze bolt which is screwed in from the top through the upper seat and into a recess in the lower seat, doing away with all strain on the seats. We recommend these pumps especially for mine work, and where high duty is required.

Code Word.	Diameter Steam Cylinder, Inches	Diameter Water Cylinder, Inches	Stroke, Inches	Gallons per Stroke	Capacity per Minute: Strokes	Capacity per Minute: Gallons	Steam Pipe, Inches	Exhaust Pipe, Inches	Suction Pipe, Inches	Discharge Pipe, Inches	Prices
Gable	7	3½	9	.37	100	37	1	1½	3	2½	Write us for prices
Gattle	7	4¼	9	.55	100	55	1	1½	3	2½	
Gally	7	4⅝	9	.69	100	69	1	1½	3	2½	
Gaiter	9	4½	10	.68	100	68	1¼	1½	4	3	
Gallant	9	5½	10	1.02	100	102	1¼	1½	4	3	
Gallon	9	6	10	1.22	100	122	1¼	1½	4	3	
Gauge	10	4½	10	.68	100	68	1½	2	4	3	
Gavel	10	5½	10	1.02	100	102	1½	2	4	3	
Gaze	10	6	12	1.46	100	146	1½	2	4	3	
Giant	10	6½	12	1.72	100	172	1½	2	4	3	
Gilt	12	6	12	1.46	100	146	1½	2½	4	3	
Gird	12	6½	12	1.72	100	172	1½	2½	4	3	
Gamble	12	6	14	1.71	100	171	1½	2½	5	4	
Game	12	7	14	2.33	100	233	1½	2½	5	4	
Gammon	12	7½	14	2.67	100	267	1½	2½	5	4	
Gander	12	8	14	3.04	100	304	1½	2½	6	5	
Gang	14	7	14	2.33	100	233	2	2½	5	4	
Gantlet	14	7½	14	2.67	100	267	2	2½	5	4	
Garble	14	8	14	3.04	100	304	2	2½	6	5	
Garden	14	10	14	4.76	100	476	2	2½	8	6	
Gayland	16	7	14	2.33	100	233	2½	3	5	4	
Garnet	16	7½	14	2.67	100	267	2½	3	6	5	
Garrison	16	8	14	3.04	100	304	2½	3	6	5	
Gasp	16	10	14	4.76	100	476	2½	3	8	6	
Gate	16	10	20	6.08	50	304	2½	3	8	6	
Gem	18	10	20	6.08	50	304	2½	3½	8	6	
Gender	18	12	20	9.79	50	489	2½	3½	8	6	
Geneval	22	10	20	6.08	50	304	3	4	8	6	
Genius	22	12	20	9.79	50	489	3	4	8	6	
Genteel	22	14	20	13.32	50	666	3	4	10	8	
Genevive	22	16	20	17.10	50	870	3	4	12	10	
Genus	22	18	20	22.02	50	1101	3	4	12	10	

In an emergency, twice the above capacity can be had, but for continuous work, such as feeding boilers we advise not more than half the strokes given above.

WHITE MOUNTAIN ICE CREAM FREEZER.



Cream can be frozen in 4 minutes in the "improved" White Mountain.

The White Mountain is the only freezer in the world having the celebrated duplex dasher, with double self-adjusting wood scraping bar, by the use of which cream can be frozen in less than one-half the time, yet finer and smoother than can possibly be produced in any other freezer now in use.

Capacity	1 qt	2 qt	3 qt	4 qt	6 qt	8 qt	10 qt	12 qt	15 qt.	20 qt	25 qt.
Our net price,	$1 75	$2.25	$2.65	$3 00	$4.00	$5.00	$6.50	$8.00	$9.75	$12.50	$16.25

Fly Wheels.

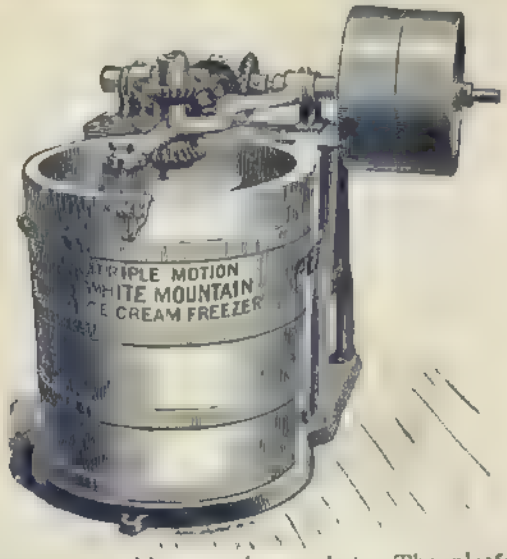
Our net price 6 qt. $1 15 8 qt., $1 35 10 qt., $2.00 12 qt., $3 00 15 qt., $3 00 20 qt., $3.60 25 qt., $4.35

NEW PLATFORM FREEZER.

The platform and stand are cast iron, nicely galvanized to prevent rust. When in use, the gear frame is fastened by latch bolt and thumb screw, but when released, can be swung to either side, so tub and can may be removed. At a slight advance in price, a pulley can be substituted for fly-wheel, shown in illustration, and a good power machine is produced. The pulley is 16x4, and the freezer should be operated at a speed of 75 revolutions per minute. The beaters used in this machine are malleable iron, tin plated, with single self-adjusting wood scraping bar.

Capacity		15 qt.	20 qt.	25 qt.
With fly wheel	Our net prices,	$22.00	$26.00	$31.00
With pulley	" " "	27.00	31.00	36.00

THE "SAMSON" POWER FREEZER.



The "Samson" is the best power machine on the market. The platform and stand are of cast iron. The gear frame extends across the top of the tub, and is fastened by a latch bolt and thumb screw.

The pulleys on the 25 qt. are 10 x 4, and on the 40 qt., 16 x 5, and the freezer should be operated at a speed of about 75 revolutions per minute.

Samson freezer, with tight and loose pulley	Our net price,	25 qt., $60.00	40 qt., $80.00
" " " fly wheel only	" " "	" 65.00	" 85.00

CAN AND TUBS.

White Mountain Freezer Tubs.

List Prices.

1 quart	$0.52
2 "	.80
3 "	.95
4 "	1.10
6 "	1.20
8 "	1.50
10 "	2.20
12 "	2.48
15 "	2.88
20 "	3.60
25 "	4.50
40 "	12.60

Packing Tubs.

List Prices.

1 quart	$0.50
2 "	.72
3 "	.86
4 "	1.00
6 "	1.08
8 "	1.30
10 "	1.58
12 "	2.16
15 "	2.76
20 "	3.38
25 "	4.18
40 "	11.72
50 "	13.32

White Mountain Freezer Cans.

List Prices.

Complete with Covers.		Covers only.	
1 quart,	$0.50	1 quart,	.20
2 "	.76	2 "	.25
3 "	.86	3 "	.30
4 "	1.04	4 "	.36
6 "	1.36	6 "	.40
8 "	1.70	8 "	.50
10 "	2.14	10 "	.60
12 "	2.70	12 "	.72
15 "	3.30	15 "	.88
20 "	4.10	20 "	1.00
25 "	5.36	25 "	1.28
40 "	12.00	40 "	2.60

Freezer cans complete with covers will be shipped on all orders not otherwise specified.

Packing Cans.

List Prices.

Complete with Covers.		Covers only.	
1 quart,	$0.50	1 quart,	$0.20
2 "	.72	2 "	.24
3 "	.86	3 "	.28
4 "	.92	4 "	.32
6 "	1.08	6 "	.36
8 "	1.24	8 "	.44
10 "	1.50	10 "	.54
12 "	2.00	12 "	.70
15 "	2.50	15 "	.80
20 "	2.90	20 "	.90
25 "	3.80	25 "	1.20
40 "	9.30	40 "	2.40
50 "	10.80	50 "	3.60

The above are for packing and carrying out cream. For extra outfits, we recommend packing tubs and freezer cans with tight or packing covers.

"IMPROVED" ARCTIC FREEZER.

The above Freezer is single action — the can revolves while the beater remains stationary

As features of especial merit, we claim:

A strong, waterproof tub, bound with heavy galvanized iron hoops; a detachable hinge top frame, with all gearing completely covered, so that nothing can get between the cogs. Cans of best quality of charcoal tin plate, and a tinned beater with double self-adjusting wood scraping bar.

The can of this freezer may be revolved after the beater is removed, which is an advantage in freezing fruit.

Size	1 qt.	2 qt.	3 qt.	4 qt.	6 qt.	8 qt.	10 qt.
Our net price	$1.50	$1.80	$2.10	$2.50	$3.25	$4.10	$5.25

DUPLICATE PARTS WHITE MOUNTAIN HAND FREEZER.

Our Net Price List.

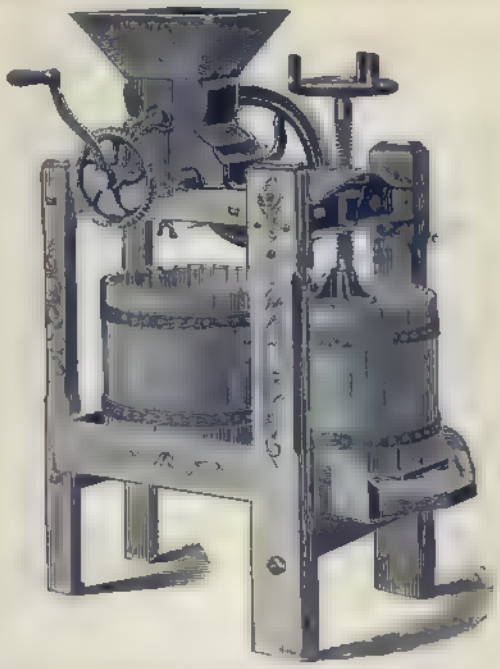
No.	Quarts	1	2	3	4	6	8	10	12	15	20	25
1	Gear Frame, with Gears (1 to 10 qt.)	.50	.85	.90	.95	1.00	1.70	1 [illegible]				
2	Small Ear (1 to 10 qt.)	.10	.16	.16	.16	20	.20	20				
3	Gear Frame, without Gears (1 to 10 qt.)	.20	.35	.40	.45	75	.85	.90				
4	Tub Handle (10 to 25 qt.)							.22	.28	28	.28	28
5	Ring for Cover of Can	.06	.08	.08	.08	.08	.08	08	.14	14	14	.20
6	Thumb Nut (12 to 25 qt.)								10	10	.10	10
7	Shaft	.08	.10	.10	.14	22	22	22	1"	1¼"	44	.04
8	Can Socket	.08	.10	.14	.14	14	22	22	.28	.28	.28	.50
9	Shank Gear	.08	.22	.22	.22	44	.44	.44	.72	72	.72	.94
10	Top Gear	.08	.14	.14	.14	.28	.28	28	50	50	.50	80
11	Screw Gear	.08	.14	.14	.14	22	.22	22	36	36	.36	44
12	Crank	.14	.22	.22	.28	28	28	28	.72	.72	72	80
13	Catch (1 to 10 qt.)	.06	.08	.08	.08	08	08	08				
14	Inside Beater	.10	.12	.15	.18	22	.28	35	.55	.00	.70	1.00
15	Large Center (12 to 25 qt.)								.14	14	14	14
16	Shaft Nut (12 to 25 qt.)								08	08	08	.08
17	Small Center (1 to 10 qt.)	.06	.08	.08	.08	06	08	08				
18	Outside Beater	.14	.20	.25	.30	42	.50	60	75	80	1 05	1 30
20	Spindle	.06	.08	.08	.08	22	.22	.22	.28	28	28	44
21	Small Latch (1 to 10 qt.)	.06	.08	.08	.08	08	.08	.08				
22	Wood Scraper	.06	.08	.08	.08	.08	.08	08	14	.14	.14	22
24	Large Ear (12 to 25 qt.)								.72	72	72	72
25	Large Latch (12 to 25 qt.)								.44	.44	.44	44
26	Gear Cap	.06	.14	.14	.14	.28	.28	.28	.44	.44	.44	50
27	Wood Scraper Holder	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	06
28	Gear Frame, with Gears (12 to 25 qt.)								2 50	2 15	3.10	4 00
	Gear Frame, without Gears (12 to 25 qt.) (Illustration No. 28 without Gears or Gear Cap.)								1.35	1.25	1.50	1 90

The minimum charge on any invoice for repairs only will be ten cents.

☞ The above repairs are for the White Mountain Hand Freezer. Repairs for Platform, Samson and Arctic Freezers, prices on application.

Order by registered number of repair, and always state size of Freezer for which repair part is wanted.

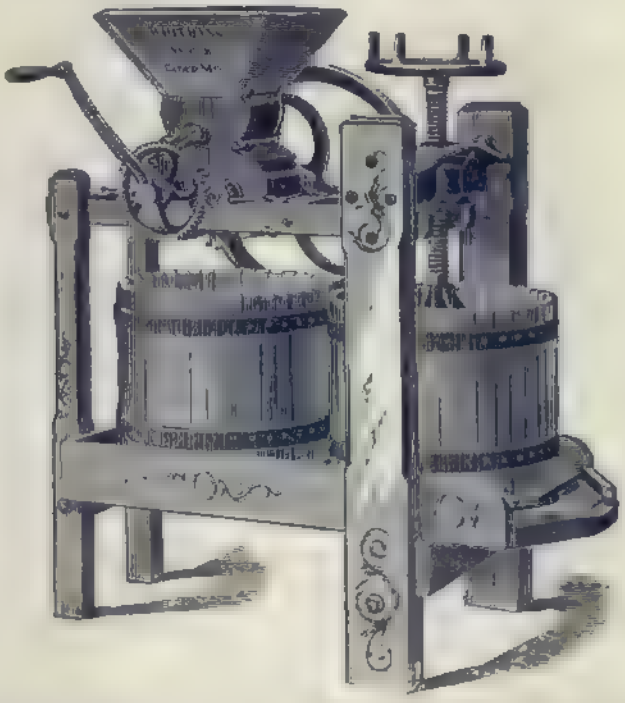
MEDIUM MONITOR CIDER MILL.



This mill was introduced a few years since, and has given perfect satisfaction. Length of posts, 3 ft. 4 in.; width at posts, 1 ft. 10 in.; weight, 230 lbs.; capacity, 3 to 5 bbls. per day.

Medium Monitor Mill . . . . . Mfrs. price, each, $20.00 Our net price, each, $19.00

SENIOR MONITOR CIDER MILL.

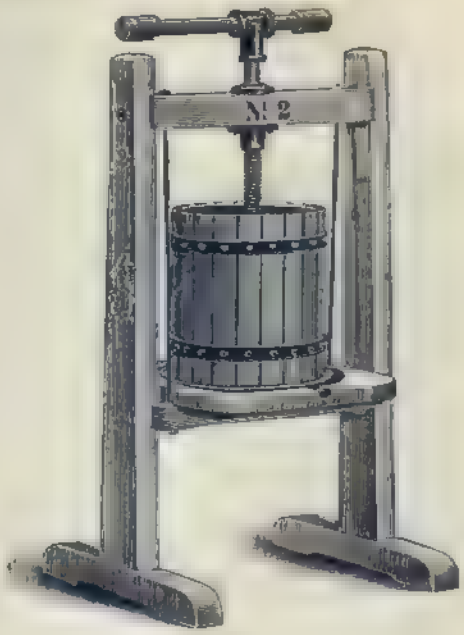


The Senior Monitor Mill is without question the best hand power mill made. It is compact, occupying a space 2½ x 4½ ft. Length of post, 3 ft. 10 in., width at post, 2 ft. 4 in.; weight, 410 lbs., capacity, 6 to 10 bbls. per day.

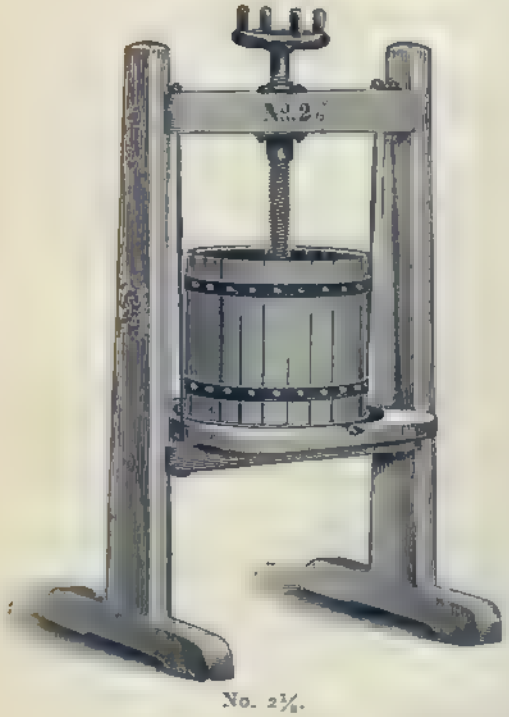
Senior Mill, 1 crank . . . . . Mfrs. price, each, $24.00 Our net price, each, $22.50
" " 2 " . . . . . " " " 28.00 " " " 26.00

CIDER, LARD AND WINE PRESSES.

No. 1.



No 2



No. 2½.

No. 3.

Strong, well made and durable. Best quality steel screws.

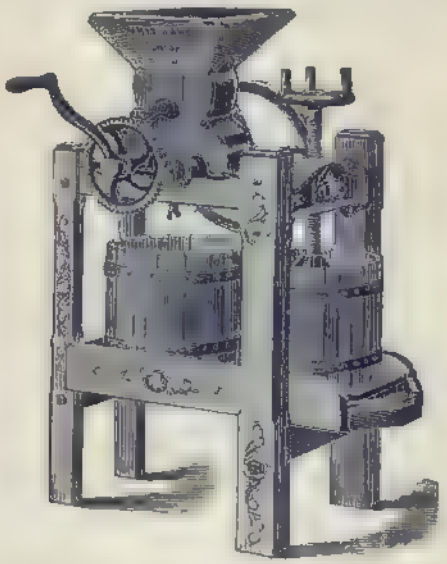
	Screw.	Tub.	Mfrs. price.	Our net price.
No. 1.	1 inch diameter x 15 inches long	8½ inches diameter x 10 inches high	$0.75	$0.00
" 2.	1¼ " " x 19 " "	10⅝ " " x 12 " "	8.50	7.00
" 2½.	1⅜ " " x 19 " "	11¼ " " x 12 " "	9.50	8.00
" 3	1⅝ " " x 23 " "	13 " " x 14 " "	12.00	10.50

HUTCHINSON CIDER MILLS.

For parties who desire to make only a limited quantity of cider or wine this old favorite mill is unexcelled. The No. 0 mill has a capacity of about ½ bbl. The No. 1 about 1 bbl. per day.

No. 0 Hutchinson Mill	Mfrs. price, each, $10.00	Our net price, each, $9.50
" 1 " "	" " " 12.00	" " " " 11.00

JUNIOR MONITOR CIDER MILL.



This Junior Monitor Mill has outside gearing, and increased speed same as the other two mills. Will grind all kinds of fruit and berries for wine or cider. Size of tubs 11 x 11½ in.; length of posts, 2 ft. 11 in.; width at posts, 1 ft. 7½ in.; weight, 165 lbs.; capacity, 1 to 3 barrels per day.

Junior Monitor Mill	Mfrs. price, each, $16.00	Our net price, each, $15.00

JOSEPH BRECK & SONS

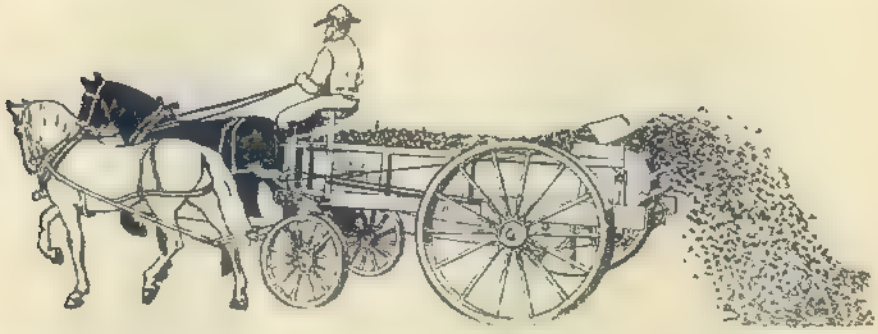
(Corporation)

CATALOGUE

....OF....

AGRICULTURAL HARDWARE, IMPLEMENTS, MACHINES AND WOODENWARE.

THE WORCESTER KEMP MANURE SPREADER.



Made continuously since 1878 by the oldest concern manufacturing Manure Spreaders in America. It has longer experience behind it and leads in improvements. Has largest bearings; strongest gearing; strongest wheels; largest axles; best body construction, framed with mortises, tenons, and tie-bolts; fastest running beater, ball-and-socket beater bearings; team two feet nearer the load; the lightest draft, patented tail board or end gate, making tight box of body. tail board lifts easily because it breaks away from the load and moves backward when raised; tail board also acts as a retaining rake when raised, more thoroughly pulverizing the manure. Changeable feed, made instantly without driver leaving his seat or stopping the team; the floor returns automatically when the load is out in *only forty feet* of travel of the machine; *two floor chains*, one at either side of apron, drawing load out to beater evenly without binding at sides, does its work accurately and with certainty, giving no trouble to user. Where one goes in neighborhood, others sure to follow.

The Worcester Kemp Spreader is built in four sizes, viz. No. 1 Spreader, smallest size, is designed for the rough, hilly farms of New England; No. 2 Spreader, of larger capacity, is the popular size for the average farmer. No. 3, a still larger size, suits the big, smooth farms where heavy horses are used; No. 4, the largest spreader made, designed for ranchmen and the most extensive prairie farmers.

All Worcester Kemp Spreaders have same width of bodies, fifty-four inches inside measurement. The bodies vary in length from eight feet eight inches on No. 1 size to twelve feet on No. 4 size.

All Worcester Kemp Spreaders have changeable feed device, and are arranged to accurately spread any amount per acre, from two to forty loads, or from one to sixteen cords per acre.

Special feed-gears can be supplied for ashes, lime, fertilizer, etc., spreading from sixty bushels per acre upwards.

Prices and descriptive catalogues mailed on application.

WORCESTER KEMP MANURE SPREADER.

Price List of Duplicate Parts.

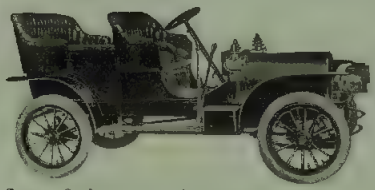
No.		
1	Hub to Drive Wheel, right,	$2 50
1A	Hub to Drive Wheel, left	2.50
2	Axle Shaft for Spreaders to No. 1600	5 00
2A	Axle Shaft for Spreaders, No. 1601 and upwards	5.00
3	Axle Box, left hand, plain, for Spreaders to No. 1600	1 00
3A	Axle Box, left hand, Spreaders No. 1601 and upwards	2 00
4	Axle Box, with plate, right	1 75
6	Axle Nut, right hand	25
6A	Axle Nut, left hand	.25
7	Bevel Gear and Pawl Holder,	1 50
7A	Left Axle Gear and Pawl Holder, Spreaders No. 1601 and up	1 50
8	Spur Gear and Pawl Holder	2 00
9	Right Hand Pawl	10
10	Left Hand Pawl	.10
11	Coiled Pawl Spring	.10
12	Train Gear Plate	1 25
13	Clutch Spur Gear	1.50
14	Intermediate Spur Gear	.75
15	Guard for Train Gear, right	1.00
15A	Guard for Worm Gear, left	1.00
16	Long Stud for Train Gear	1.25
17	Short Stud	.50
18	Clutch Pinion Gear	75
19	Beater Roll, complete,	7 00
20	Hanger for Beater Roll	.10
21	Spur Pinion for Beater Roll	.10
22	Beater Pins	.03
23	Comb Board, complete	1.50
24	Right Hand Standard for Comb Board	20
25	Left Hd. Std. for Comb Board,	.25
26	Hook for Comb Board	.05
27	Stud for Comb Board	.10
28	Stop Stud for Comb Board	.10
29	Steel Pins for Comb Board	.02
30	Spider Wheels, each, Spreaders to No. 2600	1.00
30A	Spider Wheels, each, Spreaders No. 2601 and upwards	1.00
31	Shafts for Spider Wheels, Spreaders to No. 2600	1 75
31A	Shafts for Spider Wheels, Spreaders No. 2601 and up	1.75
32	Hangers for Spider Shafts, Spreaders to No. 2600	.30
32A	Hangers for Spider Shafts, Spreaders No. 2601 and up	.30
33	Collar for Spider Shaft	.15
34	Coarse Worm, for Spreaders to No. 1600	.60
34A	Coarse Worm, for Spreaders No. 1601 and upwards	.60
34B	Coarse Worm, 40 loads to acre, Spreaders No. 1601 and up	.75
35	Fine Worm	.60
35A	Fine Worm, 2½ loads to acre, Spreaders No. 1601 and up	.75
36	Worm Gear, 20 loads to acre, Spreaders to No. 1600	1.00
36A	Worm Gear, for Spreaders No. 1601 to 2300	1.00
36B	Worm Gear, square hole, Spreaders No. 2301 and up	1.00
37	Worm Gear, 15 loads to acre, Spreaders to No. 1600	.75
38	Worm Gear, 10 loads to acre, Spreaders to No. 1600	1.25
38A	Worm Gear, fine, 2½ loads to acre, Spr'ders No. 1601–2300,	1.25
38B	Worm Gear, fine, 2½ loads to acre, Spreaders 2301 and upwards, square hole	1.25
39	Worm Shaft, Spreaders to No. 1600	$1.00
39A	Worm Shaft, Spreaders No. 1601 and upwards	1.00
40	Hanger for Worm Shaft, Spreaders to No. 1600	.15
40A	Hanger for Worm Shaft, Spreaders No. 1601 and up	15
41	Collar for Worm Shaft, plain	.15
42	Collar for Worm Shaft, with set screw	.25
42A	Collar for Worm Shaft, with set screw No. 1601 and up	.25
43	Guide for Worm Shaft, Spreaders No. 1600	.15
43A	Guide for Worm Shaft, Spreaders No. 1601 and upwards	.15
44	Socket and Collar for Worm Shaft, Spreaders to No. 1600,	.40
44A	Socket and Collar for Worm Shaft, Sprs. No. 1601 and up,	.50
45	Shipper Connection and Eye Bolt, Spreaders to No. 1600	.35
45A	Shipper Connection and Eye Bolt, Sprs. No. 1601 and up,	.35
46	Guard for Worm Gear, Sprs. to No. 1600	.40
47	Washer for Gear Guard	.10
47A	Plate for Seat Spring	.10
48	Bevel Pinion	.40
48A	Bevel Pinion for Disc Gear	.50
49	Crank Wheel	.60
49A	Crank Wheel	.75
49½A	Crank Wheel Handle	.25
50	Crank Wheel Shaft	1.00
51	Front Shipper Shaft	.60
52	Pawl for Shipper Lever	.15
53	Front Shipper Handle	.30
54	Front Shipper Latch	.10
55	Long Latch Spring	.10
56	Short Latch Spring	.10
57	Front Board Straps (wrought) each	.40
57A	Front Board Straps (malleable), each	.40
58	Stop Stud for Front Board	.10
59	Half Worm	.25
60	Shipper Fork	.50
61	Guide for Right Hand Shipper,	.15
62	Seat, cast	1.00
62A	Seat, wood	1.00
63	Seat Chair	.15
64	Seat Standard, wood	.40
65	Socket for Standard	.30
66	Half Worm Guide	.10
67	Bevel Washer	.05
68	King Bolt for Tongue, Spr'der,	.25
69	Centre Truck Rolls	.12
70	Side Truck Rolls for Spreaders to No. 2600	.10
70A	Side Truck Rolls for Spreaders No. 2601 and upwards	.10
71	Lag Screws for No. 70	.06
71A	Bracket for No 70 A	.10
72	Chain Sheaves	.50
73	Cable Chain	1.25
74	Strap Hinge Chain, 2 inch, wrought	1.50
75	Strap Hinge Chain, 1¾ inch, wrought	1.25
	Strap Hinge Links, 2 inch, wr.,	.20
	Strap Hinge Links, 1¾ in. wr.,	.15
74A	Strap Hinge Chain, malleable, Spreaders No. 2601 and up	1.50
75A	Strap Hinge Chain Centre, malleable, Spre'der No. 2601 and up	1.25
75A	Strap Hinge Links, malleable Spreaders No. 1601 and up,	$0.20
	Strap Hinge Links Centre, malleable, Spr'der No. 2601 and up	.15
76	Swivel Link for Chain	.15
77	Swivel Bolt for Chain	.10
77A	Swivel Nut	.10
78	Right Hand Shipper Hanger,	.10
79	Disc Gear	2.50
80	Disc Gear Stud	.50
81	Disc Gear Stud Washer	.10
83	Seat Standard, each	.25
85	Foot Board Straps, each	.30
86	Foot Board Braces, each	.20
87	Draw Iron	1.25
107	Pole Tip	.50
108	Bolster Iron, rear end of pole,	1.50
110	King Bolt for cut under Spr.	.10
111	King Bolt Strap	.25
113	Evener Strap	.25
114	Axle Clip	.50
114A	Axle Clip to take Hook Braces	.50
115	Axle Washer, F'rw'd Wheels,	.10
120	Evener Clevis	.25
124	Axle Collar for Forward Axle,	.15
125	Axle Washer for Rear Axle	.10
126	Draw Hook, right hand	50
127	Draw Hook, left hand	50
	Axle Linch Pins	.10
	Forward Wheels, each	6.00
	Large Driving Wheels, each,	8.00
	Forward Axle	4.00
	Forward Hubs, each	2 00
	Pole	3 00
	Whiffletrees, each	.75
	Evener	.50
	Neck Yoke	1.00
	Bottom, complete, with No. 74 Hinges	10 00
	Bottom, complete, with No. 74A Hinges	10.00
	Bottom Lags, each, for No. 74 Hinges	.40
	Bottom Lags, each, for No. 74A Hinges	.40
	Swivel Connections malleable	.10
1B	Forward Hub	2.00
8A	Spur Gear	3.00
4A	Right Axle Box	2.25
128A	Worm Shaft Hanger	.75
128½	Worm Shaft Bearing Bushing	.10
128B	Worm Shaft Lifting Cam	.25
129	Worm Shaft Box	.35
49B	Ratchet Wheel	.50
130A	Worm Shaft Lifting Cam	.15
131	Beater Hanger, Left Hand	1.50
132	Beater Hanger, Right Hand	1.50
133A	Beater Sprocket	.50
134	Shipper Handle Socket	.30
72A	Crank Shaft Sprocket	40
135	Clutch Sprocket	2.00
136	Clutch Pinion Gear	1.00
137	Pole Strap, Right Hand	.75
138	Pole Strap, Left Hand	.75
139	Lower Rocker Plate	2.25
140	Upper Rocker Plate	2.25
147	Joint Bolt Washer	.05
141	Sleeve for Clutch Pinion	.50
142A	Tail Board Box Cap	.25
142B	Tail Board Box	.25
143	Inner Bearing for Disc Gear Shaft	.25
144	Inner Bearing for Clutch Pinion Shaft	.25

WORCESTER KEMP MANURE SPREADER.

Price List of Duplicate Parts.

No.		
145	Shipper Rod Bearing, Right Hand	$0.50
146	Shipper Rod Bearing Left Hand	.50
D22	Chain Tightener	.20
156	Shipper Hanger	.25
157	Shipper Hinge	.10
149	Stop Motion Casting	.15
150	Beater Box	.35
151	Beater Head	1 50
152	Wrench	35
153	Beater Hanger Strap	.15
155	Latch Washer	.05
158	Stop Motion Casting on Chain	.15
158½	Stop Motion Washer	.05
195	Shipper Guide	.10
176	Shipper Rod Collar	.15
163	Swivel Bracket	
552	Pole Plate, Top	.10
553	Pole Plate, Bottom	.10
125	Rear Axle Washer	10
207A	Pole Tip Clevis	.50
74D	Side Hinge Link, Long	.20
74E	Side Hinge Link, Short	.20
75D	Centre Hinge Link, Long	15
75E	Centre Hinge Link, Short	.15
74B	Side Hinge Chain, complete, Nos. 2 and 3 Spreaders	2 50
74C	Side Hinge Chain, complete, No 1	2 25
75B	Centre Hinge Chain, complete Nos 2 and 3	2 25
75C	Centre Hinge Chain, complete No. 1	2 00
181½	Chain Connection	15
179	Whiff. Hook, Right Hand	.10
180	Whiff. Hook, Left Hand	.10
52C	Floor Chain, complete	2.00
62C	Beater Driving Chain complete	2 00
52L	Floor Chain Links, each	04
62L	Beater Chain Links each	04
181	Swivel Link and Bolt	.25
182	Head Board Link	05
183	Swivel Nut	.10
173	Tail Board Arm, Right Hand, Nos. 1 and 2 Spreaders	.50
174	Tail Board Arm, Left Hand, Nos. 1 and 2 Spreaders	.50
173B	Tail Board Arm, Right Hand No 3 Spreader	.50
174B	Tail Board Arm, Left Hand, No 3 Spreader	.50
737	Oil Cup	.10
164	Take up Casting for Shipper Rod	15
160	Side Arm for Raising Tail Board	.50
161	Clutch Shipper Arm	25
162	Worm Shipper Arm	.25
113A	Axle Clip	.50
2B	Main Axle	5.00
165	Front Axle	4 00
31B	Spider Shaft	1.75
50A	Sprocket Shaft	1.00
169	Shipper Shaft	.75
166	Clutch Pinion Shaft	2 00
167	Disc Gear Shaft	1.75
168	Beater Shaft	1.75
126A	Draw Rod, for Swing Evener,	.50
126	Draw Hook Rod Right Hand,	50
170	Rod for Raising Tail Board, Nos. 2 and 3 Spreaders	.50
170A	Rod for Raising Tail Board, No. 1 Spreader	.50
170B	Rod for Raising Tail Board, Short	$0.35
171	Rod for Lifting Worm	.75
172	Rod for Shipping Clutch Pinion	.40
148	Front Axle Staple	.20
110A	King Pin	.25
22A	Beater Pin	03
22B	Beater Pin, Long, with Nuts,	.10
187	Shipper Trip Lever, Nos 1 and 2 Spreaders	50
187A	Shipper Trip Lever, No. 3 Spreader	.50
186	Seat Spring	60
60A	Shipper Fork	1.00
87A	Rocker Plate Brace	.60
123B	Shipper Handle	.10
98B	Worm Shaft, Nos 2 and 3 Spreaders	1 25
39C	Worm Shaft, No. 1 Spreader,	1.25
177	Latch Dog	.10
178	Tail Board Hinge Bolt, Nos 1 and 2 Spreaders	.25
178A	Tail Board Hinge Bolt, No 3 Spreader	.25
A58½	Cup Screw	.10
89	Washer for Clutch Pinion Shaft	.15
188	Lugs for 4-in. Drive Wheels, each	15
188A	Lugs for 5-in Drive Wheels each	.15
190	Turnbuckle	.25
191	Shipper Spring	.30
192	Shipper Fork Swivel	.10
193	Eccner Bolt	.15
194	Whiff. Staple	.10
197	Axle Cotters	.10
198	Wrench Hook	.10
199	Tail Board Arm Connection,	10
200	Beater Sticks with Pins, No 1 Strip	.60
200A	Beater Sticks with Pins, No 2 Strip	.60
200B	Beater Sticks with Pins, No 3 Strip	.60
200C	Beater Sticks with Pins, No 4 Strip	.60
200D	Beater Sticks with Pins, No. 5 Strip	.60
200E	Beater Sticks with Pins, No. 6 Strip	.60
200F	Beater Sticks with Pins No. 7 Strip	60
200G	Beater Sticks with Pins, No. 8 Strip	60
201	Tail Board Guide, Nos. 1 and 2 Spreaders	.50
202	Tail Board Guide, No. 3 Spreader	.50
205	Drive Wheel, Off	8.00
205A	Drive Wheel, Near	8.00
204	Front Wheel	5.00
205	Pole	3 00
206	Whiffletrees	.75
207	Evener	.50
208	Neck Yoke	1.00
209	Floor Lags, narrow, each	.40
210	Floor Lag, wide	.60
211	Gear Cover, Right Hand	1.00
212	Gear Cover, Left Hand	1.00
213	Bottom Complete No. 1 Spreader	10 00
213A	Bottom Complete, No. 2 Spreader	11.00
213B	Bottom Complete, No. 3 Spreader	$11.00
274	Head Board with Wide Lag, complete	2 50
548	Seat	1.00
	Cross Sills	1.00
	Side Sills	2.00
	Centre Sills	1 50
5	Right Hand Axle Box for Main Axle	1 25
5A	Right Hand Box for Pinion Axle	1.25
7AB	Left Axle Gear	2.00
50B	Spider Wheel	1 00
31C	Spider Shaft, with round end	1 75
36C	Worm Gear with square hole,	1.00
36D	Worm Gear with round hole,	1 00
34C	Worm Gear with round hole slow feed	1.25
39D	Worm Shaft for No. 1 Spreaders, No 5000 and upward	1 25
48B	Disc Pinion	1.00
61A	Coil Latch Spring	05
57B	Head Board Strap	.40
72B	Bottom, Return Sprocket	.40
79A	Disc Gear for Change Feed	2 50
110A	King Bolt, Long	.35
115A	Front Axle Washer	10
124R	Axle Collar and Clip	.25
124L	Axle Collar and Clip	.25
131A	L. H. Beater and Worm Shaft Hanger	2.25
132A	Right Hand Beater Hanger,	1 50
137A	Pole Strap, Right Hand	75
138A	Pole Strap, Left Hand	75
139A	Lower Rocker Plate	2.25
140A	Upper Rocker Plate	2.25
165A	Front Axle	4.00
215	Change Feed Guide	40
216	Disc Pinion Shipper Clutch	.20
217	Cap for No 216	15
218	Shipper Handle Connection,	.25
219	Disc Pinion Collar (two pieces)	.20
221	Shipper Latch Socket	.15
230	Return Motion Clutch Sprocket	1.00
231	Return Motion Clutch	.50
232	Return Motion Foot Lever	.25
233	Return Motion Stop	.20
234	Return Motion Shipper Fork,	.20
234A	Return Motion Shipper Fork Staple	.15
235	Beater Chain Tightener	.40
236	Return Motion, Foot Lever Standard	25
237	Change Feed Handle Bushing	.05
239	Return Motion Chain Tightener	20
240	Whiff. Staple	25
241	Whiff. Hook	25
300B	Cross Shaft Connection	50
301	King Bolt Brace	1 00
302	Beater Hanger Brace	.25
303	Change Feed Handle	50
304	Change Feed Connection	50
305	Return Motion Rod	.25
306	Return Motion Rod Connection, Long	.15
307	Return Motion Rod Connection, Short	15
308	Return Motion Chain Complete	2 50

Descriptive catalogues mailed on application.



TYPE G, 1906

4 Cylinder Light Touring Car

Shaft drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Force feed oiler on the dash. 4 or 5 passengers. Side doors. 88-inch wheel base. 12 "*Franklin horse-power*." 1,300 pounds. 50 miles per hour. $1 800, F. O. B. Factory. Full head- and tail-light equipment.

One of the most interesting and attractive cars in the whole motoring field for 1906.

The ideal light family touring car. Light in weight, small in bulk and operating cost, but big in strength, capacity and performance.

Its 12 *"Franklin-power"* does all that any 20 horse-power car, except a *Franklin*, will do; does more than most of them; does what some of the highest powered, highest priced cars will not do.

The rear seat is more than wide enough for two grown people. Add a boy or girl and it is just right.

You cannot buy another car that will do what this does for anywhere near the money.

FRANKLIN NEWS FOR 1906

Continued on next page.

4 great every-day-in-the-year cars

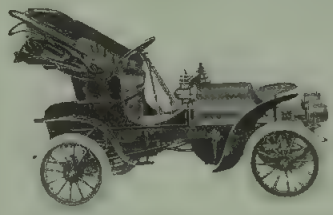
Type G.—The new light Touring Car shown above.
Type E.—Gentlemen's Roadster. The best built, ablest Runabout in the world. Shown on page 70.
Type D.—The finest, high-power, 4 cylinder, American Road Touring Car. Shown on page 71.
Type H.—The new 6 cylinder, top notch flyer. Shown on page 72.

Improved Oiler, Carburetor, Clutch, Brakes and Bearings, FRANKLIN Air-cooling, Power, Lightness, Strength, Springs.

Bore and Stroke: In Types E and G, 3¼x3¼. In Types D and H, 4x4.

Cylinders are cast separately and so designed that the metal is evenly distributed, thus insuring a casting free from strains and one that will remain permanently round. Cylinders are bored, seasoned, and then ground, thus insuring a straight and round cylinder.

Pistons and cylinders are cast to a special analysis, insuring a very tough and close-grained iron; thereby doing away with loss of compression due to porous iron. Three eccentric rings ground round after cutting are fitted to each piston.



TYPE E, 1906

4 Cylinder Runabout or Gentleman's Roadster.

Two passengers only. No tonneau can be attached. 12 "*Franklin 2 cylinder*," 4 cylinder, air-cooled engine. Wheel base, 81½ inches, 6 more than last year. Makes the car roomier. Distinctly more graceful and easier riding. Force-feed oiler on the dash. Change lever placed inside the car and forward. More convenient, especially when top is on, and handsomer. 1,100 pounds. Combination fronting for canopy cape or victoria top and case front a decided improvement. 40 miles an hour. $1,400, F. O. B. factory. Equipped with head- and tail-light equipment.

The ablest, speediest, most luxuriously-built runabout ever made. This year it is handsomer, easier, more serviceable than ever.

It has no equal as a business runabout, a superintendent's car, or for a doctor or other professional man, for a salesman; for a suburbanite; for two-passenger touring, or as a speedy roadster for the owner of a big touring car.

It would be a mistake to class this car with ordinary runabouts. Judged by weight or nominal rating, its price looks high; but measured by ability and service rendered in the long run, it is the most economical of runabouts.

FRANKLIN

Auxiliary Exhaust: A port with valve at bottom of the stroke lets the hot high-pressure gases out before the main exhaust-valve opens; thus reducing back pressure and maintaining the combustion chamber at the temperature of maximum efficiency.

It increases the power of the engine. It keeps the exhaust valves from getting burned and pitted. It keeps carbon deposit out of the combustion chamber almost completely. It positively keeps spark plugs from fouling. It allows the use of graphite lubrication in the engine.

Cooling: Direct air-cooling. In Type E it is natural; with no fan. In Type G a suction-fan wheel is used in rear of engine. In Types D and H there is also a fan on the front. It is gear driven, with no belts or chains to run off or stretch.

Control: Spark control is on wheel column. Throttle control is on steering wheel. The driver has complete control without moving.

Lubrication: A sight, force feed mechanical oiler, on dash in sight of operator, furnishes oil for all parts of the motor.

We manufacture our own carbureter. Many carbureters purchased on the market and which give satisfaction on ordinary motors are not efficient enough for Franklin motors.

Brake Control: Three band brakes, one on each rear wheel and one on the transmission brake drum. For 1906 these have all been increased in diameter and face until they are now more than amply safe. All brakes are double-acting, and each brake alone is sufficient to hold car under ordinary circumstances.

Axles: Front axle is made from nickel steel tube. This insures lightness, rigidity and a superabundance of strength. Yokes and knuckles are of nickel steel.

Rear axle is of nickel steel, especially treated, and of from 58 to 64 tons tensile

TYPE D, 1906

4 Cylinder Touring Car

Shaft drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Force feed oiler on the dash. 6 passengers. Side doors. 100-inch wheel base. 20 *"Franklin horse-power."* 1,800 pounds. 40 miles per hour. $2,800, F. O. B. Factory.

Full head- and tail-light equipment.

The finest and speediest of all 20 horse-power Touring Cars.

Money will not buy more luxury and comfort or better touring mileage in a car of 4 cylinders or less, not excepting the usual heavy 40 horse-power car.

Type D, because of its great strength, lightness, and perfect springs, can be driven at speed over rough roads with comfort and safety.

Its patterns are like the G car, but it has larger cylinders, longer wheel base and 8 more *"Franklin horse-power."* It is roomier and even more luxurious in appointments.

NEWS FOR 1906 Continued

strength per square inch. Differential gears are in an oil-tight case. Differential and bevel drive gears are made from nickel steel forgings

CARBURETOR: Automatic float feed. Gasoline enters from lower side of carburetor and is strained through wire gauze before entering float chamber. Dirt and water are collected in a trap, which can be entirely removed or easily cleaned, without disturbing any other part of carburetor.

A by-pass operated by the throttle supplies auxiliary air in proper proportions. This by-pass being mechanically operated does away with springs, separate air control and a multiplicity of other parts. All connections are made with ground joint unions.

IGNITION: Jump spark with dry batteries arranged in two sets, which may be used independently or together. Cells are carried on running board in mud and water-proof box. Spark coil is on dash. All wiring is enclosed and protected from dirt, oil and moisture. Timer contact is made by roller, thus doing away with all wear and insuring a long life.

CLUTCH: A disc clutch perfected in all details allows the car to be started slowly, easily and without jar. A slight oil film carried between the discs makes the changes from one speed to another unnoticeable. There is no slipping after engaging.

BODY: In TYPES G, D and H, aluminum, with two side doors, divided front seat. Single seat for three behind. In TYPE E, aluminum, built on steel angles; divided seat. Special soft cushions.

Aluminum is both stronger and lighter than wood. Will not crack nor splinter, and holds finish better.

Side doors open toward front, on extension hinges, swinging clear open and giving wide entrance.

HOOD: Aluminum.

FRONT MUD-GUARDS: Improved pattern, giving complete protection from mud

MUFFLER: Small, but entirely effective

EQUIPMENT: Two oil side lamps, 1 rear lamp, 2 headlights, horn, complete tool equipment. Best quality lamp; and on G, D and H acetylene mirror has headlights.

TYPE H

6 Cylinder Touring Car

Six cylinders. Air-cooled. shaft drive. 3-speed sliding-gear transmission. New and perfect disc clutch. Wheel-base, 114 inches. 30 *Franklin* horse-power. 3,400 pounds. 65 miles per hour. $4,000, F. O. B. Factory. Full head- and tail-light equipment.

This car combines great power with light weight to a degree never before attained. It is the *Franklin* idea pushed up to the highest notch.

For speed it is the "Empire State Express" or "20th Century Limited" of automobiling.

The six cylinders divide the engine force into six impulses; which balance the motor rotation with extreme evenness and produce the utmost smoothness of running and flexibility of operation; and permit tremendous power and speed without a corresponding increase of weight or strain on the car.

FRANKLIN NEWS

Concluded from page 71

Service Economy Value

The high-power *Franklins* cool as completely and perfectly as the runabout, in hot weather or at a hot pace. The proofs fill a book. If you want it, we'll send you the book.

All *Franklins* are remarkably quiet.

Franklin touring-cars do the same work as the heaviest highest-priced cars; but are easier to ride in, to handle and to care for; more enjoyable, safer and vastly more economical.

Franklins save fuel, oil, repairs and, above all, tires.

They are sold under a strong and definite guarantee.

The *Franklins* shown here are not only up-to-the-minute cars of the season, but their far-advanced design and detail perfection will make them favorite and standard cars for many seasons.

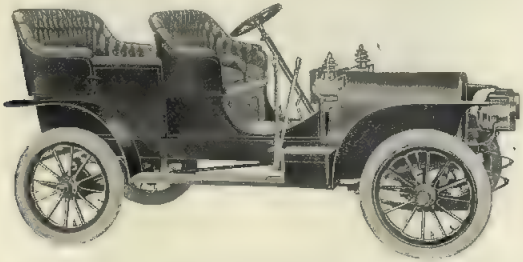
"The Motor Car of the Future"

H. H. FRANKLIN MFG. CO., Syracuse, N. Y.

Members Association Licensed Automobile Manufacturers.

The New Franklin Air-Cooled Cars

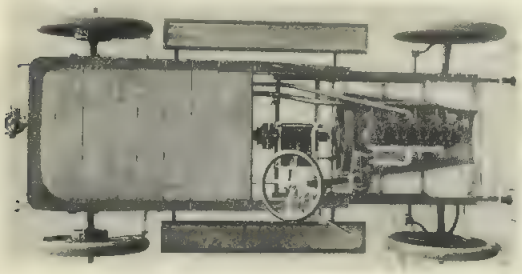
Two new models have been added to the Franklin air-cooled line for 1906—one a 4-cylinder, 12 H. P., light touring car; the other a 6-cylinder, 30 H. P. car on the lines of Type D, but larger and more powerful. The 1906 whole line consists of four models, G, H, D and E, the two latter being last year's models improved in detail.



The Franklin new model, Type G.

FRANKLIN 1906 IMPROVEMENTS.

On all Franklin touring cars this year the clutch and brake levers are put forward out of the way so that the driver can get in and out easily. On the E car they are placed inside and forward. All except the E car are shaft-driven cars. The throttle governor is enclosed and fool-proof. All working parts—engine, commutator, carburetor, steering-gear, transmission, drive-shaft, knuckles, etc.—are completely protected against dirt and dust. An improved and more effective carburetor is used for types G, D and H. It is said to be positively automatic through any range of speed. Lubrication is by a force-pump. The feeds are positively adjustable and directly in sight, on the dash. There is one feed to the transmission; two to the engine base on E, two to base on G and four on D and H. The oil pump is run by a wire belt which will not slip from spilled oil; and will not stretch. The clutch on types G, D and H is of the multiple disc type and takes hold without jerking, thereby saving strain of transmission and driving mechanism. It is completely enclosed and runs in oil. There are ball-bearings on the outside end of the rear axle and transmission on types G, D and H. There are larger and more effective brakes. The differential gear is in an oil-tight case. One oiling does for 3 or 4 months and oil cannot get on the brakes. The commutator is an entirely new device very durable and perfectly synchronized. There is a suction fan fly-wheel on the rear of the engine in both the G and D types; and a cooling fan on the front of the D engine. No change has been made in the Franklin engines of last year.

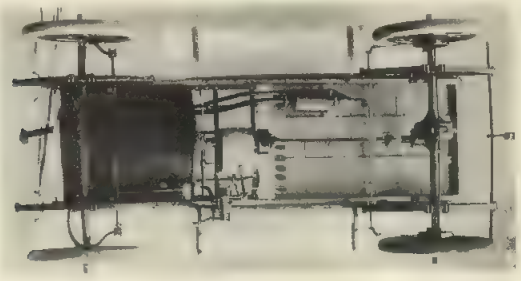


Franklin Type G Chassis. Top view.

The side-doors on this year's cars open

toward the front. They are hung on extension hinges which allow them to swing clear open. It gives the greatest possible space for entrance, and makes getting in and out of the car extremely easy. The door cannot strike the mud-guard, and if left open by mistake cannot be torn off by striking anything, but is closed by the forward movement of the car. The improved front mud-guards, with which all cars except type E are equipped, afford better protection from mud and dirt than previous designs.

The E car is still chain driven. This method has proven so completely successful on this car, that there has been no thought of a change in this feature.

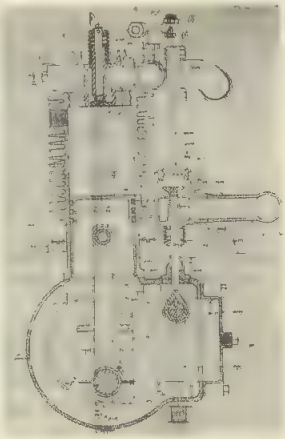


Franklin Type G Chassis. Bottom view.

FRANKLIN TYPE G

Type G is a shaft driven, 1300 lb. car with sliding gear, 3-speed and reverse transmission. The 4 cylinder motor is rated at 12 H. P., but has proven capable of carrying big loads at high speed or up steep grades. It is big enough to hold four grown persons and a boy or girl comfortably. Price, with full equipment of lamps and tools, is $1800. It has the lines and looks of a big car. Being shaft-driven its four cylinders are placed "fore-and-aft" under a long rounded hood, the same as in Type D. This arrangement gives it a symmetrical rakish appearance that indicates capacity and power. The double side doors, luxurious upholstery and appointments and roomy seats carry out the big-car effect.

The wheel base is 88 in. and the tread standard. The 28 in. 12-spoke wood wheels are shod with 760x90 mm. tires. The rear axle is divided and runs in a tubular casing on ball bearings. The bevel driving gears are supported at each end by bearings. Front axle is tubular and front wheels run on roller bearings. Full elliptic springs, 36 in. long, support the frame. Double acting "Raymond" brakes operate on the driving shaft and are applied by means of a pedal. Hand-operated double-acting brakes act on the rear hubs; these, too, being "Raymonds." Seven gallons of gasoline and 6 pints of lubricating oil are carried. Lubrication is by splash and oil is maintained in the engine base by a force-feed, sight-feed oiler in which the two feeds are adjustable. The oiler is on the dash. The air-cooling of the 3¼x3¼ individually cast cylinders is assisted by a suction fan. Jump spark ignition is employed and current is taken from batteries. The four coils are on the dash. The gear reductions are 4½ to 1 on high speed, 7¾ to 1 on medium, 13½ to 1 on low, and 15 to 1 on the reverse.



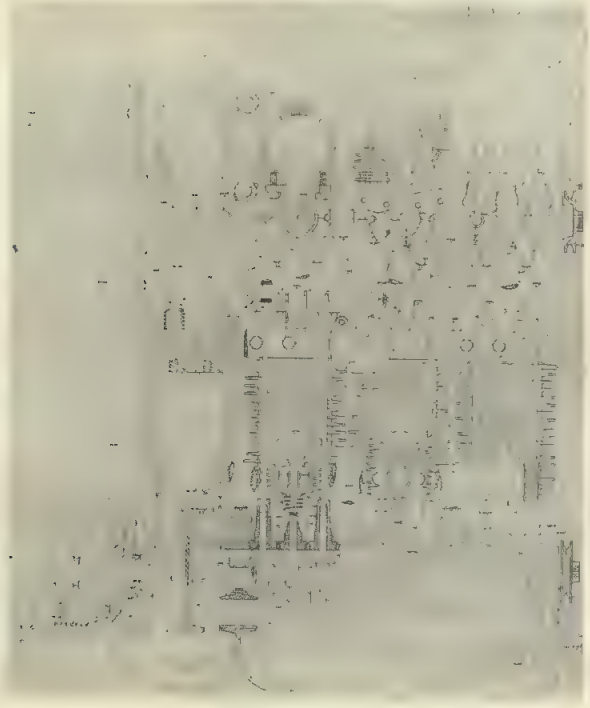
Engine of the Franklin Type G. End view.

Type H differs from Type D only in having larger dimensions. The wheels are 34 in.

in diameter and have 4-in. tires. The wheel base is 114 in. and the car weighs 2400 lbs. The 6-cylinder engine has a 4-in. stroke and 4-in. bore and the car is rated as being capable of speeds up to 50 miles per hour. Price, with equipment of tools and lamps, is $4000. Type H combines great power with lightness and is intended for the man who wants high speed with large capacity, safety and luxurious comfort.

Expert engineering and absence of the water-cooling system make it possible to build Franklins light and strong in proportion to their power; and these possibilities are carried to high development with best-grade materials and workmanship.

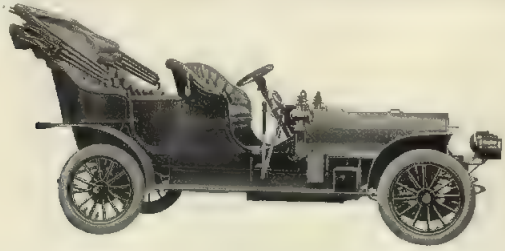
The materials used are nickel-steel, cast-iron, aluminum, Babbitt metal, Chrome steel, Phosphor bronze, spring-steel, steel-tubing, pressed steel, drop-forged-steel, steel-stamping, steel-plates, brass and wood. Each material is employed for its adaptability to its particular use without regard to expense:—nickel-steel for strength; aluminum for lightness; wood for flexibility, etc. Steering-knuckles, gears and shafts in transmission; main drive-shaft, rear axle and bevel-gear at end of drive shafts are of nickel-steel. Front and rear axles, steering-tube and steering connecting rod are steel tubing. Cylinders and valve seats, piston, exhaust yoke and fly-wheel are cast-iron. Steering-knuckles,



Engine of the Franklin Type G. Side view.

steering-yoke, spring chair, walking-beams on the valve engine support, crank-shaft, universal shaft-yoke, all levers and connecting-rod of engine are of drop-forging. All bearings of crank shaft are hard Babbitt metal.

Wood is used for sills and dash, because it takes up vibrations better than metal; and, in connection with full springs, enables them to use lighter material in the engine. The finish of Franklin cars is the very best coach



The Franklin Type H 6-cylinder Car

die-cast to exact size under enormous pressure, and made only in their factory. Ball bearings are of Chrome steel. Engine-base, cheek piece (end of engine shaft), transmission-case and body of the car are aluminum

finish. The very best material is used in painting, and the highest priced varnish on the market. The upholstering is substantial, tasteful and luxurious in the extreme.

All Franklin cars are equipped with the

6-cylinder Engine of the Franklin Type H

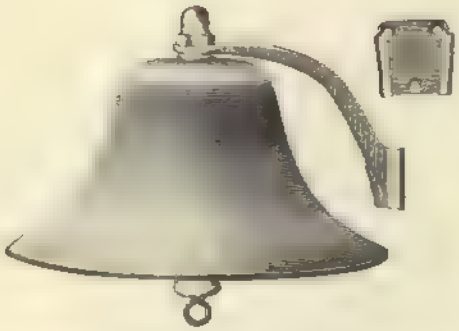
Every Franklin car has an aluminum body because aluminum is both stronger and lighter than wood; will not open up cracks; nor split; nor splinter in an accident; is easier to repair, and holds its finish better.

tools necessary for ordinary adjustment or small repairs—including a tire-repairing outfit; with a French horn, two oil side-lights, two head-lights and tail-light.

W. W. Taxis, who for several years was in charge of the automobile department of Wanamaker's Philadelphia store, has resigned the management of The Ford Motor Co.'s Philadelphia branch and is open for a position in the sales department of a good concern.

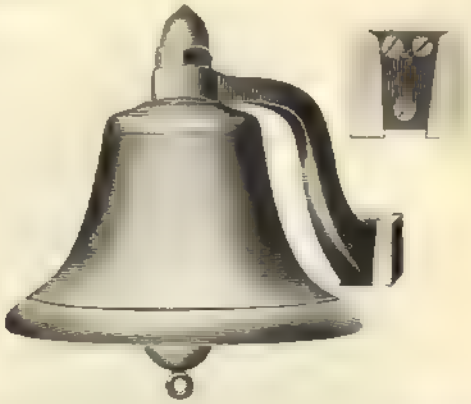
Motz Clincher Tire and Rubber Co., of Akron, Ohio, have leased a portion of a plant at North High and Main streets, where they will do the finishing of Motz tires, the preliminary processes being done by the Buckeye Rubber Co. as heretofore.

Binnacle Bells



Special Light Pattern
Made from Wrought Brass, Stamped and Polished, Detachable Bracket

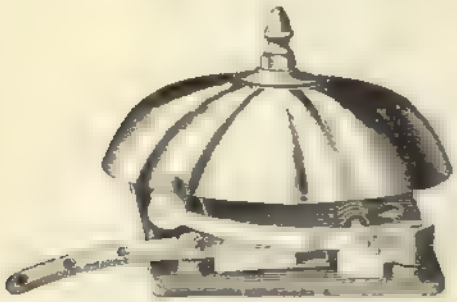
No.	85	95
Diameter Bell, Inches	6	8
Each	$2.50	4.00



Pure Bell Metal, Brass Fittings, Detachable Bracket, Polished

No.	12D
Diameter Bell, Inches	6
Each	$5 70

Trip Gong Bells



No. 173—Polished Bell Metal

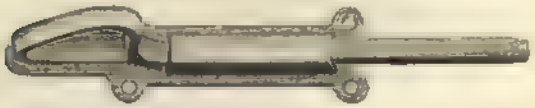
Diameter Gong, Inches	3	4	5
Per Doz	$10.00	12 50	16.50
Diameter Gong, Inches	6	8	10
Per Doz	$24.00	46 00	84.00

10 Inch Gong has Wood Hammer

Check Springs

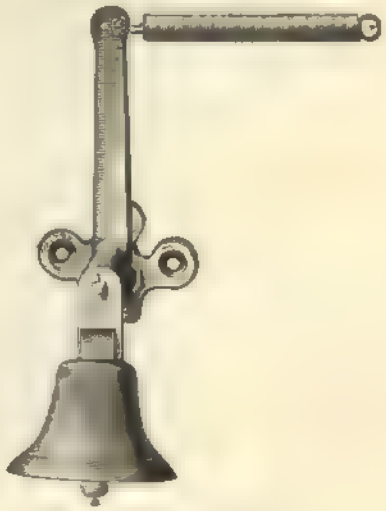
Length	Per Doz.
5 Inch, Brass, Spring Wire	$1.90
8 Inch, Brass, Spring Wire	6 00

Bell Pulls



No.	Each
1—Polished Brass, Length of Pull 1¾ in	$0.50
3—Polished Brass, Length of Pull 3 in	1.00

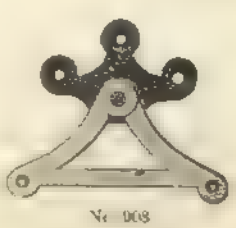
Jingle Bells



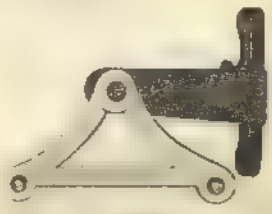
Bell Metal Bell, Brass Carriage
(Without Check Strings)

Diameter Bell, Inches	2½	3½
Each	$1 60	2 50

Bell Cranks



No. 908



No. 909

Rough Brass, 3 in. Crank

No.	Per Doz.
908—Side or Plate	$4 00
909—Upright or Pillar	6 00

Ship Bow and Side Lights

Nos. 6G and 6B

Nos. 12G to 17B

Fig. 916—Side Lights, Fresnal Glass

No.		Per Pair
6G	—Galvanized, Fresnal Glass 4¾ in Wide, 4½ in. High, Extreme Height 10¼ in	$6 50
6B	—Polished Brass, Fresnal Glass 4¾ in. Wide, 4½ in. High, Extreme Height 10¼ in	9 50

Fig. 917—Bow Lights, Plain and Fresnal Glass

No.		Each
12G	—Galvanized, Fresnal Glass 4¾ in. Wide, 4¼ in. High, Frame 6⅝ in. High	$5 00
12B	—Polished Brass, Fresnal Glass 4¾ in. Wide, 4¼ in. High, Frame 6⅝ in. High	6 75
13G	—Galvanized, Fresnal Glass 4¾ in. Wide, 4¼ in. High, Frame 8 in. High	5 25
13B	—Polished Brass, Fresnal Glass 4¾ in. Wide, 4¼ in. High, Frame 8 in. High	9 00
17G	—Galvanized, Plain Glass 4½ in. Wide, 4¼ in. High, Frame 6⅝ in. High	4 50
17B	-Polished Brass, Plain Glass 4½ in. Wide, 4¼ in. High, Frame 6⅝ in. High	6 00

Fig. 915—Side Lights
With Plain Glass

No.		Per Pair
01G	Galvanized, Glass 3¾ in Wide, 4¾ in. High, Frame 5½ in. High	$3 50
01B	Polished Brass Glass 3¾ in. Wide, 4¾ in. High, Frame 5½ in. High	6 00
1G	Galvanized, Glass 4¼ in. Wide, 4¼ in. High, Frame 6½ in. High	3 75
1B	Polished Brass, Glass 4¼ in. Wide, 4¼ in. High, Frame 6½ in. High	6 75
3G	-Galvanized, Glass 5¾ in. Wide, 1¾ in. High, Frame 9 in. High	5 25
3B	Polished Brass, Glass 5¾ in Wide 4¾ in. High, Frame 9 in. High	10 00

A Pair consists of One each Port and Starboard Light

Lanterns

MOTOR BOAT OR LAUNCH

Baby—In Sets

Size of Glass Side 3×3½ in. Bow 3×4⅝ in., Height of Frame 4⅝ in., Extreme Height 8 in.

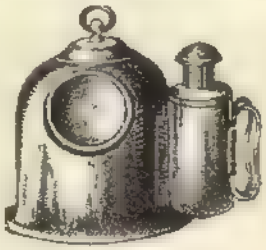
	Per Set
Galvanized Iron (3 Lanterns)	$8 25
Polished Brass (3 Lanterns)	11 25

ENGINEERS

Diam. Globe 3 in., Height Globe 4½ in., Height Frame 6¾ in., Extreme Height 10 in.

No.	Per Doz.
922G—Galvanized	$13.75
922B—Polished Brass	26 00

Brass Binnacles



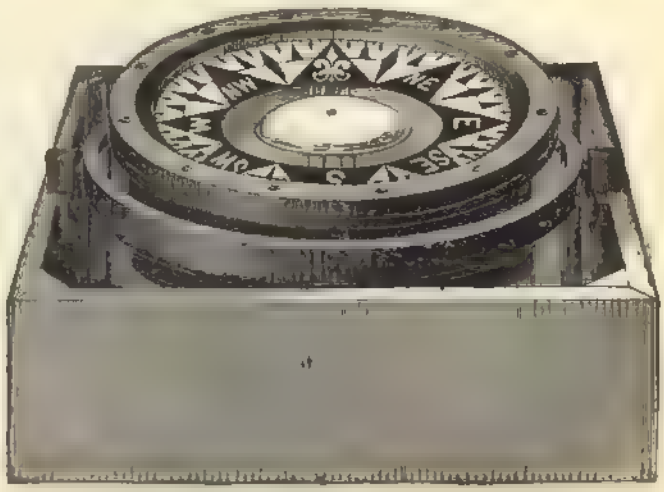
No.	Each
998—Size No. 1, For Liquid Compass 2 in., Polished Brass, with one Lamp	$7 00

Dry Compasses

No. 995—In Wood Box

Size Card, Inches	2¾	3⅛
Size Box, Inches	5	6
Each	$2 60	3.10

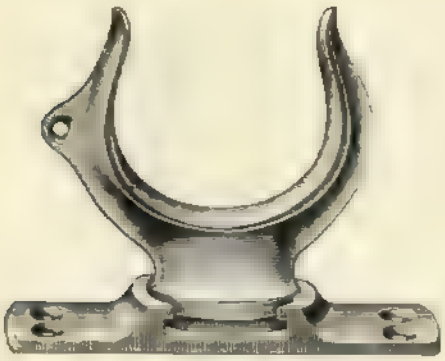
Liquid Compasses



No. 196—In Mahogany Box

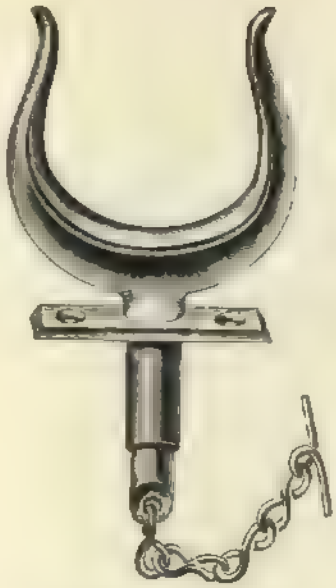
Size Card, Inches	2	2¾	3	4
Size Box, Inches	4½	5½	6¼	7¾
Each	$10 00	17 00	21 00	25 00

Rowlocks



Cast Brass, Polished

No.	Per Pair
705—2 in. between Horns	$2.20



Cast Brass, Polished

No.	Per Pair
701—2 in. between Horns	$1.50

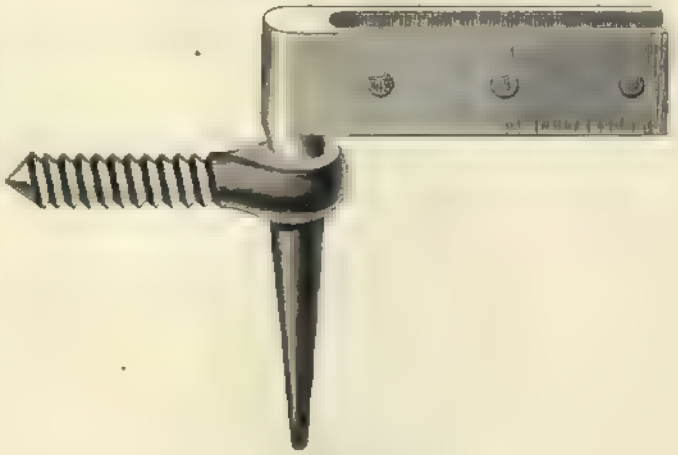
Malleable Iron, Galvanized

No.	0	1	2
Between Horns, Inches	1¾	2	2¼
Per Pair	$0 30	35	50

Cast Iron, Galvanized

No.	10	11	12
Between Horns, Inches	1¾	2	2¼
Per Pair	$0 20	.25	.40

Rudder Braces



Plain Brass

No.	0	1	2
Opening between Straps, Inches	½	⅝	¾
Per Doz. Sets	$5.00	6.00	7.50

No.	3	4	5
Opening between Straps, Inches	⅞	1⅛	1¼
Per Doz. Sets	$9 00	12 00	14.00

Boat Oars

Ash, Copper Tipped

Length Feet	6	6½	7	7½	8	8½	9	10	12
Weight per Pair, Pounds	6½	7	8	9	10	11¼	12½	14	15
Per Foot	$0.12	.12	.12	.12	.12	.12	.12	.12	.12

CEMENT WORKING TOOLS.

DRIVEWAY GROOVER A: BLADE ⅝ INCHES DEEP.

FIG. 3022.

DRIVEWAY GROOVER B: BLADE ⅝ INCHES DEEP.

FIG. 3023.

DRIVEWAY GROOVER C: ADJUSTABLE FROM ⅜ TO 1½ INCHES IN DEPTH.

FIG. 3024.

CURB TOOL.

FIG. 3025.

RESIDENCE CURB TOOL.

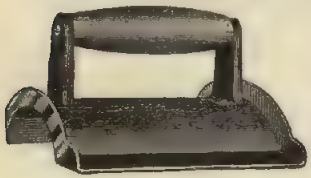


FIG. 3026.

BEVEL TOOL.

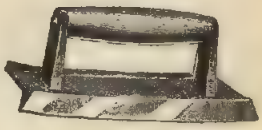


FIG. 3027.

Driveway Grooves.

Number	A	B	C
Radius.....inches			
Price, Steel.....each	1.30	.60	4.00
Price, Brass.....each	1.90	1.00	4.60

Curb Tools.

	⅜	½	1	2
Price, Steel.....each	1.40	1.40	1.40	1.80
Price, Brass.....each	1.70	1.70	1.80	2.90

Residence Curb Tools.

Height of Roll.....inches	1¼	2¾
Price, Steel.....each	2.10	3.10
Price, Brass.....each	3.10	3.70

Bevel Tools.

Price, Steel.....each	1.40
Price, Brass.....each	1.80

CEMENT WORKING TOOLS.

GUTTER TOOL.

FIG. 3028.

Gutter Tools.

RADIUS TOOL.

FIG. 3029.

Radius Tools.

Size, depth and width	inches	1 x 4½	1½ x 6	
Price, Steel	each	2.20	2.60	.70
Price, Brass	each	3.10	3.70	1.00

ANGLE TROWEL.

FIG. 3030.

Angle Trowels.

FLOAT.

FIG. 3031.

Floats.

Price	each	1.50	Price, Oak	each	.40

CONCRETE CUTTERS, 5½ X 18 INCHES.

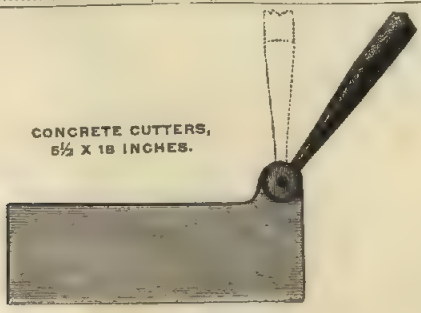


FIG. 3032.

Price, Steel	each	5.00

CEMENT WORKING TOOLS, ETC.

INDENTATION ROLLER.

FIG. 3033.

LINE ROLLER.

FIG. 3034.

	Nos. 1 and 2.		Nos. 3 to 6.					
Number	1	2	3	4	5	6	*7	*8
Length.....inches	7½	12	7½	7½	12	12	7½	12
Distance of Lines Apart..inches	.....	.....	1 3/16	½	1 3/16	½	.....	.....
Price .....each	13.50	17.50	13.50	13.50	17.50	17.50	13.50	17.50

* Numbers 7 and 8 are Ribbon Rollers; each ribbon is an inch wide and is separated from the other by an inch of plain surface.

BELGIAN HAMMER.

FIG. 3035.

COBBLE HAMMER.

FIG. 3036.

MACADAMIZING HAMMER.

FIG. 3037.

Belgian, Cobble and Macadamizing Hammers.

Price, Belgian and Cobble Hammers.....each	4.50
Price, Macadamizing Hammers, 1 to 2 pounds.....per pound	.75

Bricklayers Hammers; not Illustrated.

Size	1	2	3	4
Weight	1 lb 2 oz	1 lb 8 oz	2 lb	2 lb 8 oz
Price.....per dozen	11.00	12.00	13.00	14.00
Price, Adze Eye.....per dozen	13.00	14.00	15.00	16.00

Laib Co.
1075
Louisville Ky.

FIG. 3038.
No. 1.

FIG. 3039.
Nos. 1½, 2 and 3.

FIG. 3040.
Nos. 3½ to 7.

Number	1	1½	2	3	3½	4	5	6	7
Weight.....pounds	14	15	20	30	12	17	20	26	17
Price.....each	.85	.90	1.20	1.80	.75	1.05	1.20	1.55	1.05

Wood Handles are furnished unless otherwise ordered; Iron Pipe Handles are furnished when desired at a small advance in price; with Pipe Handles each Tamper weighs four pounds more. No. 1 is for setting posts. Nos. 1½, 2 and 3 for tamping sod.

PAVING POUNDERS, FURNISHED WITH ROUND OR SQUARE BODIES.

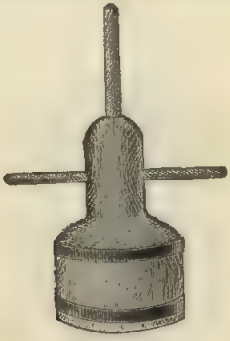


FIG. 3041.

Price.....each	8.00

60-INCH AND 72-INCH HALF AND FULL UNIVERSAL RADIAL DRILLS.

FIG. 2447.

These machines may be furnished with direct motor drive Description, page 826.

60-INCH AND 72-INCH, HALF AND FULL UNIVERSAL RADIAL DRILLS.

Rigidity and convenience in handling have been the main objects in designing these machines.

THE ADJUSTABLE HANDLE ROD below the arm STARTS, STOPS, ENGAGES the BACK GEARS, and REVERSES the spindle QUICKLY for TAPPING, all while the machine is running and without resorting to the belt shifter.

By means of a knurled head screw on the operating lever the BRAKE POWER of the driving friction can be so ADJUSTED that the SPINDLE will slip at a certain strain for instance, when the TAP STRIKES the BOTTOM of the hole or any other obstruction. This and the slow forward speed and quick backing out will increase the life of the taps at least three-fold.

The AUXILIARY LEVER shown on the arm serves for setting the machine, for tapping, and can also be used to run the tap forward at a high speed and backward at an only slightly increased speed, which is sometimes wanted for small tapping.

The ARM is substantially socketed into the sleeve sliding on the column, and the worm box on top of the worm wheel serves as a gib to avoid binding when the bolts are loosened and the arm is swiveled. Both the arm and the head make a complete revolution and are indexed on the swivel plates.

The SPINDLE has a QUICK RETURN operated by the hand wheel on the feed shaft. The HANDLE above this hand wheel ENGAGES and DISENGAGES the FEED INSTANTLY and a cam keeps it disengaged while tapping.

The FEED is POSITIVE (geared) and can be VARIED by shifting the small handle sliding in the slot on the headstock WHILE DRILLING.

A SPEED and FEED PLATE goes with every machine.

The COLUMN swings on an inner stump reaching almost to the top. It rests and revolves on a ROLLER BEARING of our own design and NO PRESSURE is exerted on top when the outer column is clamped to its inner stump.

ALL BEVEL GEARS are PLANED THEORETICALLY CORRECT and the ones in the head are made of steel.

Workmanship and material are of the modern standard.

These machines can be furnished with MOTOR DRIVE SPEED VARIATOR or VARIABLE SPEED COUNTERSHAFTS, either of which can be applied to the LOWER CONE SHAFT or to the CENTER SHAFT of the column to ALLOW a COMPLETE REVOLUTION of the arm.

A square table goes with each machine regularly, but swivel tables of any style can be furnished.

	60"	72"		60"	72"
Drills to the center of a circle	122"	146"	Traverse of head on arm	42"	53"
Takes between spindle and base	73"	77"	" of arm on column	53"	56"
" " and table	48	51"	Size of table	23" sq.	26" sq.
" " "	16'	18"	Total height of machine	9' 5"	10' 2"
Spindle, traverse of			Floor space required	10'8"x14'	11'8"x16'
" diameter at point power is applied	2⅝"	2¾"	Cone Pulley, largest diameter of	15"	17"
Spindle has Morse Taper	No. 4	No. 5	" " width of belt	3"	3½"
" feed .006 to .014	3	3	Countershaft, revolutions of	225	200
" speeds, { 60" 9 to 225 revolutions	10	10	" " pulleys, diameter of	16"	18"
" speeds, { 72" 8 to 196 revolutions	10	10	Countershaft, width of belt	4"	4½"
Least distance between column and spindle	18	20"	Weight, net about	8,800	12,000
			" boxed about	9,800	13,200
			Cubic feet, boxed	160	180

31 AND 36-INCH, 48 AND 54-INCH RADIAL DRILLS.

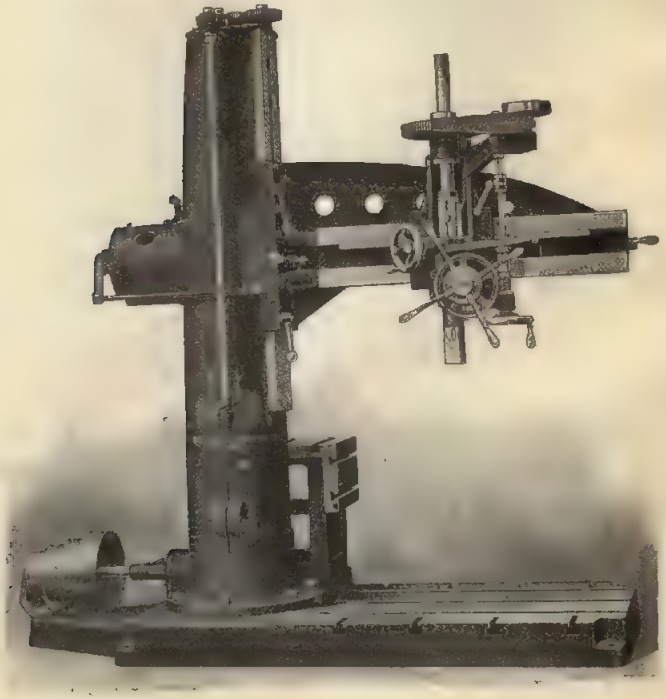


FIG. 2448.

Description, Page 828.

DESCRIPTION OF 31-INCH, 36-INCH, 48-INCH AND 54-INCH RADIAL DRILLS.

Rigidity and convenience in handling have been the main objects in designing this machine.

The LEVER protruding near the column through the arm STARTS, STOPS, ENGAGES the BACK GEARS and REVERSES the spindle QUICKLY for TAPPING, all while running and without resorting to the belt shifter

By means of a knurled head screw on the operating lever the BRAKE POWER of the driving friction can be so ADJUSTED that the SPINDLE will SLIP at a certain strain, for instance, when the TAP STRIKES the BOTTOM of the hole or any other obstruction. This and the slow forward speed and quick backing out will increase the life of the taps at least three-fold.

The AUXILIARY LEVER shown on the arm serves for setting the machine for tapping, and can also be used to run the tap forward at a high speed and backward at an only slightly increased speed, which is sometimes wanted for small tapping.

The QUICK RETURN DEVICE for the spindle has FOUR LEVERS, either of which ENGAGES and DISENGAGES the feed INSTANTLY. An automatic locking plug keeps it disengaged when tapping.

The SPINDLE is provided with an AUTOMATIC STOP and DEPTH GAUGE, it has FOUR CHANGES OF semi-geared FEED which can be VARIED by shifting the knob on the feed rod WHILE DRILLING.

A SPEED and FEED PLATE goes with every machine.

The COLUMN revolves on a ROLLER BEARING and no pressure is exerted on top of the same when clamped.

ALL BEVEL GEARS are PLANED THEORETICALLY CORRECT and the high speed pinions are made of RAWHIDE to insure noiseless running.

Workmanship and material are of the modern standard.

This machine can be furnished with MOTOR DRIVE, SPEED VARIATOR, VARIABLE SPEED COUNTERSHAFT (attached to allow complete revolution of arm), and all styles of SWIVEL TABLES.

Dimensions and Capacity.	31"	36"	48"	54"
Drills to the center of a circle	63"	73"	97"	109"
Takes between spindle and base	52"	58"	61"	66"
" " " " table	39"	39"	37"	43"
Spindle, traverse of	12"	12"	15"	15"
" least diameter of	1⅜"	1⅜"	1⅛"	1⅛"
" has Morse Taper	No. 4	No. 4	No. 4	No. 5
" feeds .007 to .016	4	4	4	4
" speeds { 31" and 36" 16 to 360 rev	8	8	8	8
" speeds { 48" and 54"—14 to 245 rev				
Least distance between column and spindle	10"	10"	14"	14"
Traverse of head on arm	21"	26"	35"	41"
" of arm on column	32"	38"	36"	43"
Size of table	25" dia.	25" dia.	20" sq.	20" sq.
Total height of machine	85'	94"	8½'	9'
Floor space required	6' X 8'	6½' x 9'	8' x 10'	8½' x 11'
Cone Pulley, largest diameter of	11"	11"	13"	13"
" " width of belt	2½"	2½"	3"	3"
Countershaft, revolutions of	300	300	275	275
" pulleys, diameter of	12"	12"	14"	14"
" width of belt	3½"	3½"	4"	4"
Capacity, pipe tap	2"	2"	2½"	3"
" standard tap	1¼"	1⅜"	1⅝"	1¼"
" drill in solid cast iron	2¼"	2⅜"	3"	3"
" drill in solid steel	2"	2"	2¼"	2¼"
Weight, net, about	3100	3350	5400	5800

Electric Push Buttons.

Half Size Cuts.

Code Bethgamul. Per Dozen
No. R05254—Wrought Steel Bronze Plated, Old Copper Finish, . . . $4.80

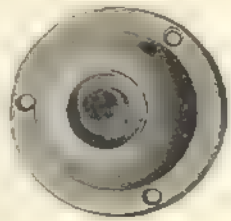
Code Bethbown
No. SR05254—Wrought Steel, Bronze Plated, Old Copper Sand Blast Finish, ... 4.80
Weight, 3 lbs. Per Dozen.

Code Bethbiking Per Dozen
No. 5444 22¼ Finish Wrought Bronze, $5 94

Code Bethlaeum.
No. 5444—20¼ Finish Wrought Bronze 5 94
Weight, 3½ lbs. Per Dozen

One-Twelfth Dozen in a Box.

Code Bethmeon. Per Dozen
No. 1188—3 Finish, Bronze Metal, . $3.50
Weight, 2½ lbs. Per Dozen.



Code Bethrall. Per Dozen
No. 1188¼—1 Finish, Bronze Metal, Polished, ... $1.80

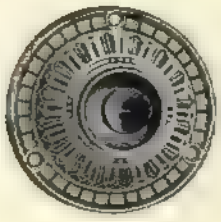
Code Bethraphe
No. 1188¼—22¼ Finish, Bronze Metal, 2.28

Code Be brebeth
No. 1188¼—20½ Finish, Bronze Metal, 2 28

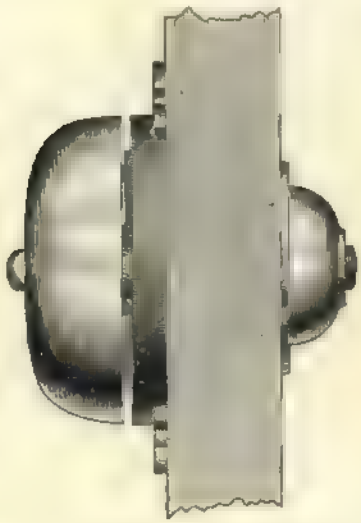
Code Bethsanda
No. 1188¼—23 Finish, Iron, . . 1.80
Weight, 2½ lbs. Per Dozen.

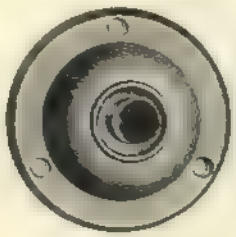
Half Dozen in a Box with Screws.

Rotary Door Bells.



No. 118





No. 525.

Code Beliding.	Per Dozen
No. 1898½x118—3 Finish, 3½ In. Bell, Bronze Metal, with Wrought Bronze Push Button, ...	$10 00

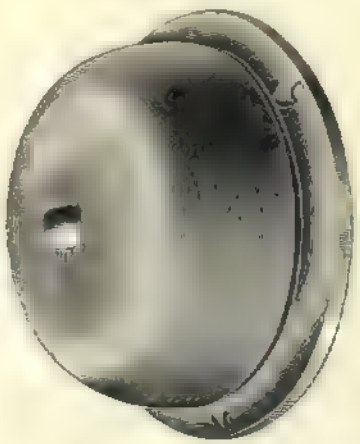
Code Bellibo.	Per Dozen
No. 1898½x525—22¼ Finish, 3½ In Bell, Bronze Meta , with Wrought Bronze Push Button,	$15.00

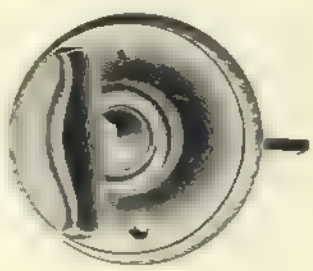
Code Bellibus

No. 1898½x525—20½ Finish, . . . 15.00

Weight, 16 lbs. Per Dozen Sets

One-Twelfth Dozen Sets in a Box, Complete





Code Belizabas.	Per Dozen
No. 100x100—4 In. Nickel Plated Bell, with 3 Finish Wrought Bronze Turn, ...	$25 00

Code Belizabunt.	Per Dozen
No. 100x0100—4 In Nickel Plated Bell, with 22¼ Finish Wrought Bronze Turn, ...	$26.00

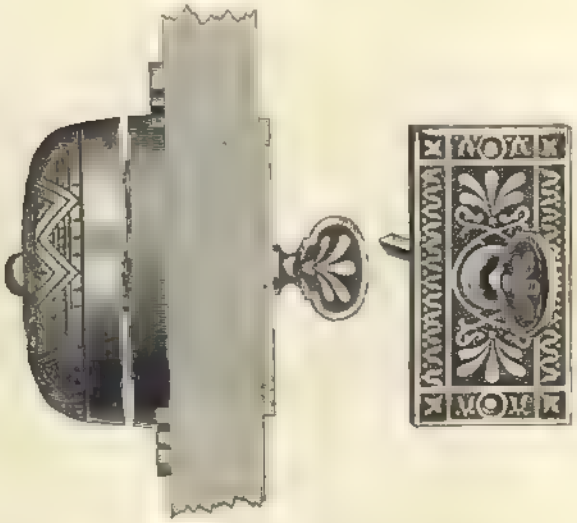
Code Belizamus

No. 100x0100—20½ Finish, . . . 26.00

Weight, 17½ lbs Per Dozen Sets.

One-Twelfth Dozen Sets in a Box, Complete

Rotary Door Bells.



Code Betzo. Per Dozen.

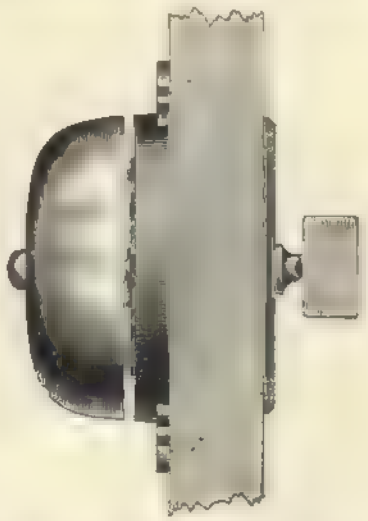
No. P1897xP34—3½ In. Bell, Cast Iron, Persian Bronzed, with Cast Iron Turn Persian Bronzed $6 00

Code Betzamine.

No. 1898x35—3½ In. Bell, Bronze Metal 3 Finish, with Bronze Metal Turn, 3 Finish, . . . 9 75

Weight 16 lbs. Per Dozen.

One-Twelfth Dozen sets in a Box, Complete



Code Betoken. Per Dozen

No. 1898x33—1 Finish, 3½ In. Bell Bronze Metal Polished, with Wrought Bronze Turn, $ 9 00

Code Betokened

No. 1898x33—22¼ Finish, Bronze Metal, ... 10.25

Code Betokening

No. 1898x33—A22 Finish, Bronze Metal, ... 10.75

Code Betokens.

No. 1898x33—23½ Finish, Bronze Metal, ... 10.25

Code Betokened

No. 1898x33—23 Finish, Iron, ... 9.00

Weight, 16 lbs. Per Dozen.

One-Twelfth Dozen Sets in a Box, Complete

New Departure Door Bells.

Half Size Cuts

Code Betrayal

No. 3241—3 In. Bell, Nickel Plated, with 3½x1¾ In. Wrought Bronze, Old Copper Finish, Turn Knob and Plate, ... Per Dozen, $11.50

Weight, 13¾ lbs. Per Dozen

Code Betrayal

No. 120—3½ In. Bell, Nickel Plated, with 1 Finish Bronze Metal Push Button, Weight 12½ lbs. Per Dozen. Per Dozen, $10.00

Code Betrayal

No. 220—3½ In. Bell, Nickel Plated, with 1 Finish Bronze Metal Push Button. Per Dozen, $10.00

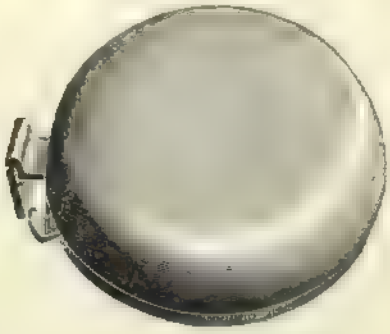
Code Betrayal

No. 122—3½ In. Bell, Old Copper Finish, with Old Copper Finish Push Button, ... 10.00

Weight, 12½ lbs. Per Dozen.

One-Two-Six Dozen Sets in a Box. Complete

Automatic Alarm Bells.



Code Betrogen

No. 126—3 In. Nickel Plated Bell, ... Per Dozen $9 00

Weight, 15 lbs. Per Dozen.

As a Burglar Alarm this Bell is Specially Valuable, it Never Fails

FANCY KNITTED WOOL DOLLS.

All these dolls are made of worsted, including heads, arms, feet, etc. They are unbreakable and therefore great sellers. All are made in a combination of bright colors.

2700-4½ Girl and Clown Worsted Dolls. With knit faces, lace edging around neck, wool hair Height of girl, 6½ in Height of boy, 7½ in 2 dozen assorted in box. Per doz., $0.45

2702-8½ Boy and Girl Worsted Dolls With knit faces, knitted wool hat, wool hair Height, 8½ in 1 dozen assorted in a box Per doz., $0.85

No. 2704-9

No. 2705-9

2704-9 Worsted Girl Doll. With knit face, wool hair, wool trimming around neck and waist Height, 9½ in. 1 dozen assorted in a box. Per doz., $0.90

2705-9 Worsted Clown Doll. With knitted face, wool hair, gilt bell on hat, wool trimming around neck. 1 dozen assorted in a box Height, 11 in. Per doz., $0.90

2701-7½ Girl and Clown Worsted Dolls With knit faces, lace edging around neck, wool hair and hats. Height of girl, 8½ in. Height of boy, 9 in. 1 dozen assorted in a box Per doz., $0.75

2703-8½ Worsted Clown and Girl Dolls. With knit faces, knitted wool hat, wool hair, wool trimming around neck and waist Height, 9½ in 1 dozen assorted in a box Per doz., $0.85

2706-7½ Worsted Girl Doll Knitted wool dress with gilt buttons, knitted wool hat and hair, fine woven face, hands and feet Height, 7½ in. 1 dozen assorted in a box. Per doz., $0.75

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

FANCY KNITTED WOOL DOLLS
Continued.

2707-15 Girl Doll With knitted wool dress and hat, wool hair, fine woven face, hands and feet. Height, 9 in. 1 dozen assorted in a box.
Per doz., $1.50

2708-17½ Assorted Clown and Girl Worsted Dolls with voice. Fine woven faces, knitted wool hat and hair, clown with three gilt bells. Height of girl, 10¾ in. Height of clown, 12 in. ½ dozen assorted in a box.
Per doz., $1.75

2709-17½ Girl Doll. With fine woven face, hands and feet, knitted wool dresses, wool hair and hat. Height, 10½ in. ½ dozen assorted in a box.
Per doz., $1.75

2710-20 Worsted Girl and Clown Dolls with voice. Fine woven face, wool hair, girls with knitted wool cap, clowns with three gilt bells. Height of girl, 11½ in. Height of clown, 12½ in. ½ dozen assorted in a box.
Per doz., $2.00

2711-22½ Worsted Girl and Clown Dolls with voice. fine woven faces, wool hair, girls with knitted wool hats, clowns with 3 gilt bells Height of girl, 12 in. Height of clown, 14¾ in. ½ dozen assorted in a box.
Per doz., $2.25

No. 2712-22½

No. 2713-22½

2712-22½ Worsted Clown Doll with voice. fine woven faces, wool hair, wool trimming around neck, clown with bells on hat and hands. ½ dozen assorted in a box. Height, 14 in. **Per doz., $2.25**

2713-22½ Girl Doll with voice. Fine woven face, hands and feet, dressed in bright colored knitted wool dresses with gilt buttons, knitted hats and hair. Height, 11½ in. ½ dozen assorted in a box.
Per doz., $2.25

No. 2714-22½

No. 2715-22½

2714-22½ Girl Doll with voice Fine woven faces, hands and feet, bright colored knitted wool dresses, wool hair, knitted wool hat. Height, 10½ in. ½ dozen assorted in a box. **Per doz., $2.25**

2715-22½ Girl Doll with voice. Fine woven face, arms and feet, dressed in bright colored flannel dress trimmed with colored yarn, lace edging around neck, knitted wool hat and hair. Height, 10½ in. ½ dozen assorted in a box.
Per doz., $2.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

FANCY KNITTED WOOL DOLLS
Continued.

2716-20 Worsted Girl Dolls with voice. Fine woven face, hands and feet, assorted bright colored ice wool and worsted dresses trimmed with wool, wool hair Height, 17½ in. ½ dozen assorted in a box. **Per doz., $2.00**

2717-22½ Assorted Clown and Girl Dolls with voice Mercerized satin dress, fine woven face, hands and feet, flexible hip joints, lace edging around neck, silk tassel on cap and waist, dress trimmed around bottom with fancy braid. Height, 11½ in ½ dozen assorted in a box. **Per doz., $2.25**

No. 2718-20 No. 2719-20

2718-20 Girl Doll. With celluloid head, knitted arms and feet, bright colored flannel costumes trimmed with wool, knitted wool hat. Height, 9½ in ½ dozen assorted in a box. **Per doz., $2.00**

2719-20 Girl Doll. With celluloid head, assorted colored flannel and knitted wool dresses trimmed with ribbon and gilt buttons, knitted wool hats, fine woven hands and feet. Height, 10 in ½ dozen assorted in a box. **Per doz., $2.00**

No. 2720-20 No. 2721-22½

2720-20 Girl Doll With celluloid head, knitted hands and feet, flannel dresses trimmed with bright colored wool and lace revers, knitted wool hoods Height, 9½ in. ½ dozen assorted in a box. **Per doz., $2.00**

2721-22½ Indian Girl Doll With celluloid head, bright colored knitted ice wool costume trimmed with feathers, knitted hands and feet. Height, 9½ in ½ dozen assorted in a box **Per doz. $2.25**

2722-22½ Colored Doll with voice. Fine woven face, hands and feet, knitted wool hat, dressed in bright colored suits trimmed with wool and gilt buttons Height, 10 in ½ dozen assorted in a box. **Per doz., $2.25**

No. 2723-22½ No. 2724-22½

2723-22½ Worsted Sailor Boy and Girl Dolls. Fine woven face and feet, dressed in neat sailor costumes, trimmed with gilt buttons, anchors and colored wool, knitted wool hats, wool hair. Height, 10 in ½ dozen assorted in a box **Per doz., $2.25**

2724-22½ Worsted "Buster Brown" Doll. With fine woven face, hands and feet, bright colored suits, knitted wool hats, long wool hair Height, 10 in ½ dozen assorted in a box **Per doz., $2.25**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

FANCY KNITTED WOOL DOLLS
Continued.

2725-40 Worsted Girl and Clown Dolls with voices. Fine woven face and feet. Bright colored dresses trimmed with wool, lace edging around neck Clown with gilt bells on hat and arms. Height of girl 14¼ in. Height of clown 16½ in. 1-3 dozen assorted in box
Per doz., $4.00

2726-45. Girl Doll with voice. Entire doll body made of fine knitted worsted. Fine quality knitted ice wool dress with collar trimmed with lace edging and ribbon bows Knitted wool hat and hair Height 14 in. 1-3 dozen assorted in a box
Per doz., $4.50

2727-42½ Girl Doll. Fine woven face arms and feet. Dressed in bright colored knitted wool dress trimmed with gilt buttons. Wool hair and knitted hat Height 14 in. 1-3 dozen assorted in a box.
Per doz., $4.25

CELLULOID FLOATING DOLLS

These dolls are made very light, unbreakable and water-proof. Balanced to stand up-right. Flesh tint, painted hair, shoes and stockings.

3950-7½ Height 3½ inches. 1 dozen in box. Per doz., $0.75
3951-9 Height, 4 inches. 1 dozen in box. Per doz., $0.90
3952-15 Height 4½ inches. ½ dozen in box. Per doz., $1.50
3953-20 Height 6 inches ½ dozen in box. Per doz., $2.00

CELLULOID FLOATING DOLLS.
With Movable Arms.

These Dolls are made very light, unbreakable and water-proof. Painted hair and eyes, arms joints closed to prevent water from entering.

3954-8½ Height 3¼ inches. 1 dozen in box. Per doz., $0.85
3955-12½ Height 3¾ inches. 1 dozen in box. Per doz., $1.25
3956-15 Height 4½ inches. ½ dozen in box Per doz., $1.50
3957-20 Height, 6 inches. ½ dozen in box. Per doz., $2.00
3958-40 Height 7 inches. 1-12 dozen in box Per doz., $4.00
3959-45 Height 8 inches. 1-12 dozen in box. Per doz., $4.50
3960-60 Height 9 inches 1-12 dozen in box. Per doz., $6.00
3961-85 Height 11 inches 1-12 dozen in box. Per doz., $8.50
3962-120 Height 12½ inches. 1-12 dozen in box Per doz., $12.00

CELLULOID FLOATING BABIES.
With Jointed Arms and Legs.

These Dolls are made very light, unbreakable and water-proof. Painted hair, eyes, shoes and stockings. Joints of arms and legs are completely closed to prevent water from entering. Balanced to stand upright.

3963-15 Height, 3¼ inches. 1 dozen in box. Per doz., $1.50
3964-17½ Height, 4 inches. ½ dozen in box. Per doz., $1.75
3965-22½ Height, 5¼ inches. ½ dozen in box. Per doz., $2.25
3966-35. Height, 3½ inches. 1-12 dozen in box. Per doz. ,$3.50
3967-90 Height, 9¾ inches. 1-12 dozen in box. Per doz., $9.00

UNBREAKABLE LEATHER DOLL.

3974-40 Unbreakable Leather Doll. Painted face, paint warranted not to come off in baby's mouth, fine quality leather, good for baby to chew on when teething, stuffed with cotton. Height, 12 in. ½ dozen in box. Per doz., $4.00

Terms on above, 10 days less a per cent, 30 days less 1 per cent, 60 days net.

Laib Co.
582
Louisville Ky

HOSE REELS.

SWINGING WALL OR STAND PIPE REEL.

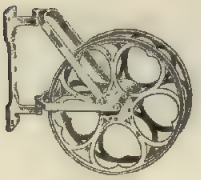


FIG. 1611.

WALL REEL.

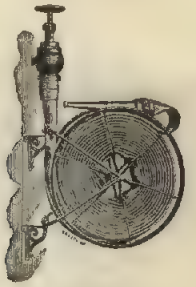


FIG. 1612.

Swinging Wall or Stand Pipe Reel.

Number	1	2	3	4	5	6
Size, Hose.....inches	1¼ or 1½	2	2½	1½ or 1¾	2	2½
Capacity, Unlined Linen Hose..... feet	175	150	150	250	250	275
Capacity, Rubber Lined Cotton Hose..feet	50	50	50	100	100	100
Price.....each	6.00	6.00	.50	7.50	8.00	8.50

Reels are constructed of metal, handsome in design and finished in enamel.

Wall Reels.

Number	0	00	000	2	3	4	5	6	7	8
Size, Hose.....inches	1¼ or 1½	2	2½	1¼ or 1½	2	2½	1½ or 1¾	2	2½	2½
Capacity, Unlined Linen Hose. ...feet	50	50	50	100	100	100	200	200	200	.....
Capacity, Rubber Lined Cotton Hose.....feet	.....	.....	.....	50	50	50	100	100	100	150
Price.....each	6.00	6.00	6.00	6.00	6.00	6.50	7.50	8.00	8.50	11.50

Pipe clamps, 4 inches and under, per pair net, .30.

Gold or silver bronze finish net, .50.

Nickel, brass or copper finish net, 3.00.

Furnished with wall brackets and finished in vermillion unless otherwise ordered.

HOSE REELS AND RACKS.

WATERWAY REEL.

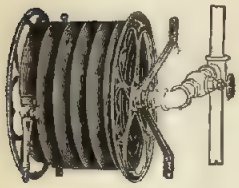


FIG. 1613.

SWINGING RACK.

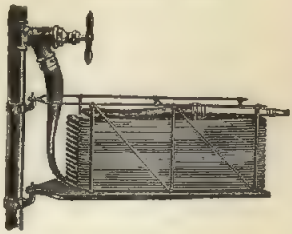


FIG. 1614.

Waterway Reels.

Size, Hose..... inches	1½	2	2½
Capacity..... feet	50	50	50
Price..... each	10.00	15.00	20.00

This Reel has a Rotary Valve and is connected direct to Stand Pipe Valve, so when Valve is open the water passes through the Reel and Hose and is ready for instant use, water can be thrown with a part or all of the Hose off the Reel.

Swinging Racks, for Unlined Linen Hose.

Number.....	9	10	11	12	13	14
Size, Hose.....inches	1½ or 2	2½	1½ or 2	2½	1½ or 2	2½
Capacity.....feet	50	50	100	100	150	150
Price ..... each	5.00	5.00	6.00	6.00	7.00	7.00

Swinging Racks, for Rubber Lined Cotton Hose.

Number.....	13	14	15	16
Size Hose.....inches	1½ or 2	2½	1½ or 2	2½
Capacity.....feet	50	50	100	100
Price .....each	7.00	7.00	7.50	8.00

Nos. 15 and 16 will carry heavy hose of almost any make in 50 feet lengths. Racks are furnished with Clamps or Wall Plates as desired, without extra charge.

Laib Co. 584 Louisville Ky

HOSE RACKS AND CARTS.

SWINGING RACK

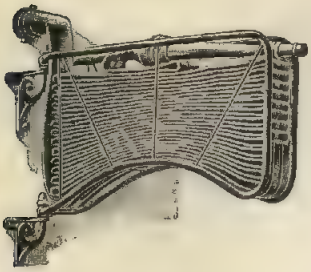


FIG 1615.

CART.

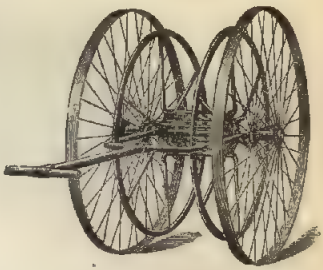


FIG. 1616.

Swinging Racks, for Unlined Linen Hose.

Number	A 0	A 00	A 1	A 2	A 3	A 4
Size Hose.....inches	1½ or 2	2½	1½ or 2	2½	1½ or 2	2½
Capacity .....feet	50	50	100	100	150	150
Price.....each	5.00	5.00	6.00	6.00	7.00	7.00

Swinging Racks, for Rubber Lined Cotton Hose.

Number	A 3	A 4	A 5	A 6
Size Hose.....inches	1½ or 2	2½	1½ or 2	2½
Capacity.....feet	50	50	100	100
Price.....each	7.00	7.00	7.50	8.00

Nickel, brass or copper finish, net extra, 3.00.

Bronzed, gold or aluminum, net extra, .50.

Pipe clamps, 4 inches and under, per pair net, .30.

Furnished with wall brackets and finished in vermillion unless otherwise ordered.

Nos. 5 and 6 will carry heavy hose of almost any make in 50 foot lengths.

Carts.

Number	101	102	103
Capacity 2½ inch Cotton Hose Rubber Lined..feet	300	600	1000
Capacity 2½ inch Rubber Fire Hose.....feet	150	300	500
Height of Wheels.....inches	42	48	52
Width Outside.....inches	38½	41	47
Weight.....pounds	130	180	200
Price .....each	35.00	45.00	55.00

Laib Co.
585
Louisville Ky

HOSE.

FIG. 1617.

Rubber Water Hose.

Size.....inches	½	¾	1	1¼	1½	1¾
Price, Two-ply.....per foot	.20	.25	.33	.42	.50	.58
Price, Three-ply.....per foot	.25	.30	.40	.50	.60	.70
Price, Four-ply.....per foot	.30	.37	.50	.62	.75	.87

Size.....inches	2	2¼	2½	2¾	3	4
Price, Two-ply.....per foot	.66	.75	.83	.92	.99	1.32
Price, Three-ply.....per foot	.80	.90	1.00	1.10	1.20	1.60
Price, Four-ply.....per foot	1.00	1.12	1.25	1.37	1.50	2.00

Five and six-ply Hose made to order at an advance of 25 and 50 per cent on Four-ply prices.

Intermediate sizes will be charged at the list price of the next larger size.

Our Brands of Rubber Garden Hose.

	Dewey	Gem	Be Be.	Elco.	High Grade		Extra Pressure.	Para.	Prices on Application.
½ inch	3 ply	4 ply	3 ply	3 ply	3 ply	7 ply	3 ply	3 ply	
¾ inch	3 ply	4 ply 5 ply	3 ply	3 ply	3 ply	7 ply	3 ply		

Steam, Air, Oil, Tanners, Brewers and Hydraulic Hose.

Size.....inches	½	¾	1	1¼	1½	1¾	2	2½	2¼	3
Price, Three-ply.....per foot	.43	.51	.67	.85	1.02	1.18	1.34	1.50	1.66	2.00
Price, Four-ply.....per foot	.51	.67	.83	1.04	1.25	1.45	1.66	1.87	2.08	2.80
Price, Five-ply.....per foot	.63	.83	1.03	1.30	1.56	1.81	2.07	2.33	2.60	3.50
Price, Six-ply.....per foot	.76	1.00	1.24	1.56	1.87	2.17	2.49	2.80	3.12	4.20

Steam Heat Hose in lengths of 22, 24, 36 and 48 inches same list as Steam Hose.

Air Brake Hose in 50 foot lengths or shorter as ordered; sizes 1 and 1¼ inch, Four-ply; same list as Steam Hose of corresponding sizes and ply.

For Marline Wound Hose, add 10 per cent net.

For Hose wound with round wire, add 15 per cent net.

For Hose wound with flat wire, add 20 per cent.

We do not break boxes.

GOLD MEDAL KID BODY DOLLS.

Bisque head with closing eyes, open mouth showing teeth, curly hair parted and tied with ribbons, covered bust, lace stockings and shoes. Style of illustration No. 15.

All with closing eyes.

3724-22½	Height, 13 in. 1 dozen in box	Per doz., $2.25
3725-40	Height, 14½ in. ½ dozen in box	Per doz., 4.00
3726-60	Height, 15½ in. ½ dozen inbox	Per doz., 6.00
3727-75	Height, 17 in. 1-3 dozen in box	Per doz., 7.50
3728-85	Height, 19 in. 1-3 dozen in box	Per doz., 8.50
3729-90	Height, 21½ in. 1-12 dozen in box	Per doz., 9.00
3730-120	Height, 22 in. 1-12 dozen in box	Per doz., 12.00

No. 20

No. 15

GOLD MEDAL KID BODY DOLLS.

Long curly and wavy hair, bisque head with closing eyes, open mouth showing teeth, hair parted and tied with colored ribbons, covered bust, lace stockings and shoes.

Style of illustration No. 20. All with closing eyes.

3731-60	Height, 16 in. 1-12 dozen in box	Per doz., $6.00
3732-80	Height, 17¼ in. 1-12 dozen in box	Per doz., 8.00
3733-105	Height, 21 in. 1-12 dozen in box	Per doz., 10.50
3734-120	Height, 22 in. 1-12 dozen in box	Per doz., 12.00

CELEBRATED "GOLD MEDAL" EXTRA FULL BODY DOLLS.

These dolls are the best made in every respect. Fine quality bisque head, very pretty features, closing eyes, open mouth showing teeth, parted hair tied with ribbons, covered bust, lace stockings and shoes.

Style of illustration No. 20. All with closing eyes.

3735-22½	Height, 11½ in. 1 dozen in box	Per doz., $2.25
3736-40	Height, 14 in. ½ dozen in box	Per doz., 4.00
3737-60	Height, 15 in. 1-3 dozen in box	Per doz., 6.00
3738-85	Height, 16 in. 1-12 dozen in box	Per doz., 8.50
3739-90	Height, 18 in. 1-12 dozen in box	Per doz., 9.00
3740-105	Height, 18½ in. 1-12 dozen in box	Per doz., 10.50
3741-120	Height, 19¼ in. 1-12 dozen in box	Per doz., 12.00
3742-135	Height, 19½ in. 1-12 dozen in box	Per doz., 13.50

No. 22

GOLD MEDAL KID BODY DOLLS.

Bisque head with long curly hair, closing eyes, open mouth showing teeth, covered bust, lace stockings and shoes.

Style of illustration No. 22. All with closing eyes.

3743-22½	Height, 12 in. 1-12 dozen in box	Per doz., $2.25
3744-40	Height, 14½ in. 1-12 dozen in box	Per doz., 4.00
3745-60	Height, 15½ in. 1-12 dozen in box	Per doz., 6.00
3746-75	Height, 17½ in. 1-12 dozen in box	Per doz., 7.50
3747-90	Height, 20 in. 1-12 dozen in box	Per doz., 9.00
3748-120	Height, 21¼ in. 1-12 dozen in box	Per doz., 12.00
3749-165	Height, 22½ in 1 12 dozen in box	Per doz., 16.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

We do not break boxes.

GOLD MEDAL KID BODY DOLLS WITH NEW STYLE POMPADOUR WIG.

Fine quality bisque head, curly hair tied in back with strip of celluloid, closing eyes, extra full body, covered bust, lace stockings and shoes.

Style of illustration No. 25. All with closing eyes.

3750-45	Height, 16 in. ½ dozen in box	Per doz., $4.50
3751-90	Height, 20 in. 1-3 dozen in box	Per doz., 9.00
3752-120	Height, 21 in. ½ dozen in box	Per doz., 12.00

No 25

GOLD MEDAL KID BODY DOLLS WITH RIVETED HIPS AND ARMS.

Fine bisque head, very pretty features, pompadour wig, long curly hair tied in back with silk ribbon, closing eyes, extra full body, covered bust, lace stockings and shoes.

Style of illustration No. 35. All with closing eyes.

3754-40	Height 14½ in. ½ dozen in box	Per doz., $4.00
3755-60	Height, 15½ in. ½ dozen in box	Per doz., 6.00
3756-75	Height, 16 in. ½ dozen in box	Per doz., 7.50
3757-90	Height, 18 in. 1-12 dozen in box	Per doz., 9.00
3758-120	Height, 20 in 1-12 dozen in box	Per doz., 12.00
3759-150	Height, 21 in. 1-12 dozen in box	Per doz., 15.00
3760-180	Height, 22¾ in. 1-12 dozen in box	Per doz., 18.00
3761-210	Height, 24 in. 1-12 dozen in box	Per doz., 21.00

No. 35

GOLD MEDAL DOLLS WITH RIVETED HIP AND ARM JOINTS.

Fine quality bisque heads with closing eyes, long curly hair, pompadour wig tied in back with strip of celluloid, full body doll with covered bust, lace stockings and shoes. Style of illustration No. 35.

All with closing eyes.

3753-22½	Height, 11½ in. 1 dozen in box	Per doz., $2.25
3762-45	Height, 14 in. 1-12 dozen in box	Per doz., 4.50
3763-75	Height, 16 in. 1-12 dozen in box	Per doz., 7.50
3764-105	Height, 19½ in. 1-12 dozen in box	Per doz., 10.50
3765-180	Height, 20 in. 1-12 dozen in box	Per doz., 18.00

No. 40

CELEBRATED GOLD MEDAL KID BODY DOLLS WITH RIVETED HIP AND KNEE JOINTS.

This doll is made of the finest quality kid, perfect in every respect, stamped with celebrated Gold Medal Trade Mark. Fine bisque head, closing eyes, long curly hair parted and tied with ribbons, covered bust, lace stockings and shoes. Style of illustration No. 40. All with closing eyes.

3765-40	Height, 14 in. ½ dozen in box	Per doz., $4.00
3767-45	Height, 14½ in. 1-3 dozen in box	Per doz., 4.50
3768-65	Height, 15½ in. 1-3 dozen in box	Per doz., 6.50
3769-75	Height, 16½ in. 1-12 dozen in box	Per doz., 7.50
3770-85	Height, 17 in. 1-12 dozen in box	Per doz., 8.50
3771-95	Height, 18½ in. 1-12 dozen in box	Per doz., 9.50
3772-105	Height, 19½ in. 1-12 dozen in box	Per doz., 10.50
3773-120	Height, 21 in. 1-12 dozen in box	Per doz., 12.00
3774-180	Height, 22 in. 1-12 dozen in box	Per doz., 18.00
3775-210	Height, 23½ in. 1-12 dozen in box	Per doz., 21.00
3776-240	Height, 25 in. 1-12 dozen in box	Per doz., 24.00
3777-270	Height, 26 in. 1-12 dozen in box	Per doz., 27.00
3778-300	Height, 27½ in. 1-12 dozen in box	Per doz., 30.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

We do not break boxes.

CELEBRATED GOLD MEDAL KID BODY DOLLS WITH RIVETED HIP AND KNEE JOINTS.

Latest style of long curly and wavy hair, parted and tied with colored ribbons. Fine quality bisque head, closing eyes, extra full body, covered bust, bisque hands, lace stockings and shoes. See illustration No. 45.

All with closing eyes.

3779-45	Height, 13¾ in.	½ dozen in box	Per doz., $4.50
3780-65	Height, 16 in.	1-12 dozen in box	Per doz., 6.50
3781-90	Height, 17 in	1-12 dozen in box	Per doz., 9.00
3782-105	Height, 18½ in.	1-12 dozen in box	Per doz., 10.50
3783-165	Height, 20½ in.	1-12 dozen in box	Per doz., 16.50
3784-210	Height, 22½ in.	1-12 dozen in box	Per doz., 21.00

No 45

No. 50

CELEBRATED GOLD MEDAL KID BODY DOLLS WITH RIVETED HIP, KNEE AND ARM JOINTS.

This doll is made of the best quality kid. Perfect in every respect. Stamped with the celebrated Gold Medal Trade Mark. Fine quality bisque head, very pretty features, closing eyes, parted and sewed wig tied with colored ribbons, all except first two numbers have necklaces. See illustration No. 50.

All with closing eyes.

3785-45	Height, 13¾ in	1-12 dozen in box	Per doz., $4.50
3786-75	Height, 16 in	1-12 dozen in box	Per doz., 7.50
3787-90	Height, 18 in	1-12 dozen in box	Per doz., 9.00
3788-120	Height, 19 in.	1-12 dozen in box	Per doz., 12.00
3789-150	Height, 20 in.	1-12 dozen in box	Per doz., 15.00
3790-180	Height, 21½ in.	1-12 dozen in box	Per doz., 18.00
3791-210	Height, 22½ in	1-12 dozen in box	Per doz., 21.00
3792-240	Height, 23½ in.	1-12 dozen in box	Per doz., 24.00
3793-300	Height, 24½ in.	1-12 dozen in box	Per doz., 30.00
3794-360	Height, 25½ in.	1-12 dozen in box	Per doz., 36.00
3795-420	Height, 26½ in.	1-12 dozen in box	Per doz., 42.00
3796-480	Height, 28 in.	1-12 dozen in box	Per doz., 48.00
3797-540	Height, 31 in	1-12 dozen in box	Per doz., 54.00
3798-600	Height, 33 in.	1-12 dozen in box	Per doz., 60.00

CELEBRATED GOLD MEDAL KID BODY DOLLS WITH POMPADOUR WIG, RIVETED HIP, KNEE AND ARM JOINTS.

Made of the best quality kid, covered bust, fine quality bisque head, closing eyes, open mouth showing teeth, new style pompadour wig tied in back with strip of celluloid, lace stockings and shoes. See illustration No. 55.

All with closing eyes.

3799-60	Height, 13¾ in.	1-3 dozen in box	Per doz., $6.00
3800-75	Height, 16 in	1-3 dozen in box	Per doz., 7.50

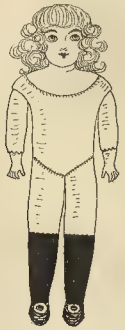
The following have pearl necklaces:

3801-90	Height, 18 in.	¼ dozen in box	Per doz., 9.00
3802-120	Height, 19 in.	1-12 dozen in box	Per doz., 12.00
3803-150	Height, 19½ in.	1-12 dozen in box	Per doz., 15.00
3804-180	Height, 21 in.	1-12 dozen in box	Per doz., 18.00
3805-240	Height, 22½ in.	1-12 dozen in box	Per doz., 24.00

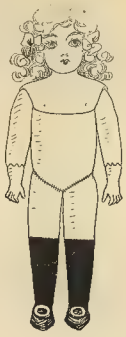
No 55

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

3700-9, 3701-12½



No 10



3709-25, 3710-27½

KID BODY DOLLS.

Bisque Head, Steady Eyes, Rembrandt Hair, Shoes and Imitation Stockings. 1 dozen in box. We do not Break Boxes.

3700-9	Height, 10½ in. 1 dozen in box	Per doz., $0.90
3701-12½	Height, 12 in 1 dozen in box	Per doz., 1.25

Kid Body Dolls with covered bust. Bisque head, open mouth showing teeth, shoes and stockings. Style of illustration No. 10. 1 dozen in box. We do not Break Boxes.

3702-17½	Rembrandt hair, steady eyes. Height, 12½ in.	Per doz., $1.75
3703-28½	Curly hair, steady eyes. Height, 12½ in.	Per doz., 1.85
3704-20	Curly hair, closing eyes. Height, 12½ in.	Per doz., 2.00
3705-22½	Curly hair, closing eyes. Height, 13 in.	Per doz., 2.25
3706-22½	Rembrandt hair, steady eyes, lace stockings Height, 14 in.	Per doz., 2.25
3707-25	Rembrandt hair, steady eyes Height, 14½ in.	Per doz., 2.50
3708-25	Bisque head, Curly hair, steady eyes. Height, 14½ in. 1 dozen in box	Per doz., 2.50
3709-25	Bisque head, curly hair, parted wig with ribbons, steady eyes, covered bust Height, 15 in. 1 dozen in box	Per doz., 2.50
3710-27½	Bisque head, Rembrandt hair, steady eyes, covered bust Height, 15½ in. 1 dozen in box	Per doz., 2.75

3708-25

No. 12

EXTRA FULL KID BODY DOLLS.

Covered bust, fine bisque head, open mouth showing teeth, curly hair, lace stockings and shoes, all with closing eyes. See illustration No. 12.

3711-25	Height, 15 in. 1 dozen in box	Per doz., $3.50
3712-37½	Height, 15¾ in ½ dozen in box	Per doz., 3.75
3713-40	Height, 15½ in ½ dozen in box	Per doz., 4.00
3714-45	Height, 16 in. ½ dozen in box	Per doz., 4.50
3715-50	Height, 16½ in ½ dozen in box	Per doz., 5.00
3716-55	Height, 17½ in. ½ dozen in box	Per doz., 5.50
3717-60	Height, 18½ in. ½ dozen in box	Per doz., 6.00
3718-75	Height, 19 in 1 dozen in box	Per doz., 7.50
3719-85	Height, 20½ in 1 dozen in box	Per doz., 8.50
3720-95	Height, 21 in 1-12 dozen in box	Per doz., 9.50
3721-120	Height, 22½ in 1-12 dozen in box	Per doz., 12.00
3722-150	Height, 25 in. 1-12 dozen in box	Per doz., 15.00
3723-180	Height, 25½ in. 1-12 dozen in box	Per doz., 18.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

PUNCHES.—Continued.

REINFORCED JAW STEEL SCREW PUNCHES.

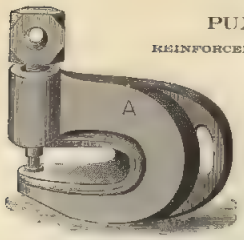


FIG. 2064.

Size.	Size of Hole.	Iron.	Depth of Jaw.	Weight.	Price
0	⅛	¼	2 in.	21 lbs.	$24 00
1	⅜	⅜	2¾ "	38 "	30 00
1A	⅜	⅜	3 "	50 "	40 00
1B	½	⅜	3¼ "	75 "	45 00
1C	½	½	3 "	88 "	55 00
2	⅝	½	2¾ "	70 "	40 00
3	¾	⅝	3 "	96 "	60 00
3A	¾	¾	3¾ "	105 "	70 00

IMPROVED HYDRAULIC PUNCH.

The punch is driven down by operating the pump inside the head or reservoir, the piston of which is connected to the socket in which the upper lever is shown. It is raised by bringing the socket down against the lug on head and pushing down the lower socket by a second lever, which does not interfere with that of the pump

Size	Diam. of Hole.	Thickness of Iron.	Depth of Jaw.	No. of Gland.	No. of Punch.	No. of Die.	Wt. in Lbs.	Price.
0	⅜ in.	⅛ in.	1½ in.	Special.	Special.	Spec.	30	$85 00
1	⅝ "	⅛ "	2½ "	4	4	4	105	110 00
1x	¾ "	⅛ "	6 "	4	4	4	140	150 00
2	1 "	⅝ "	2½ "	5	5	4	130	140 00
2x	1 "	⅝ "	4½ "	5	5	5	165	175 00
3	1¼ "	¾ "	3 "	6	6	5	280	175 00
3x	1½ "	¾ "	4 "	6	6	5	300	200 00
4	1¾ "	1 "	3½ "	7	7	6	325	225 00

One round punch and die furnished with each tool.

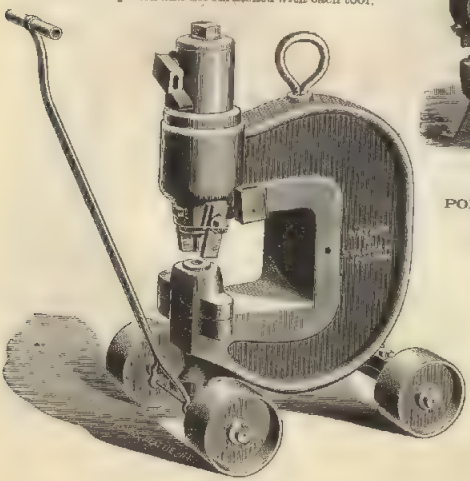


FIG. 2066.

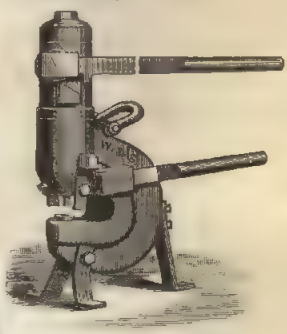


FIG. 2065

PORTABLE HYDRAULIC BEAM PUNCH.

9-INCH JAW PATTERN.

Operated by a pump worked by lever inserted in socket shown.

Capacity of Punch, with one man on lever, 1-in. round hole in 1-in. iron.

Weight 645 pounds. Fitted with Gland No. 6, Punch No. 3. Price, $225

12½ INCH JAW PATTERN.

Heavier tool than 9-inch. Fitted with No. 6 Gland, No. 6 Punch and No. 5 Die.

No. 3. Weight 800 lbs. $375 00
No. 4. Weight 1400 lbs. 400 00

PUNCHES.—CONTINUED.

HYDRAULIC PUNCH FOR WEB OF "JOHNSON" STREET GIRDER RAILS.

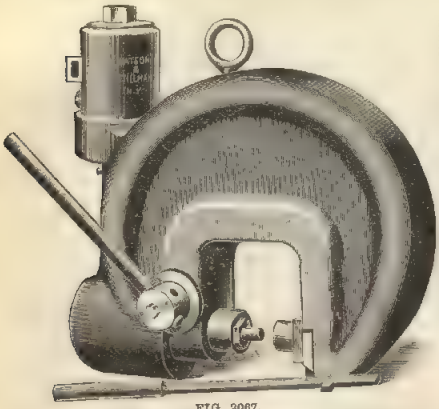


FIG. 2067.

No. 3 fitted with Gland No. 5, Punch No. 5. The Die is special.

In punching street railroad girder rails of this pattern when in place a special form of our Hydraulic Punch has to be used. The head of the rail being very wide and the punch low down, none of our ordinary forms were convenient, which rendered this form of tool necessary. Our recent improvement, whereby the ram can be brought down to the work without the loss of time and labor of pumping has been augmented by placing the die in a sliding block which can be removed by simply raising a latch, thus getting a clear opening of five inches and at the same time keeping the length of the cylinder short enough to not be in the way of the work, the head smaller and the whole tool lighter. This form of tool can also be furnished for punching "T" beams. The tool is steadied by bringing the punch against the work, with the quick-acting lever, before beginning to operate the pumping lever. The upper socket must be brought down against the lug on the head before the quick-acting lever can be used.

HAND POWER SCROLL PUNCH.

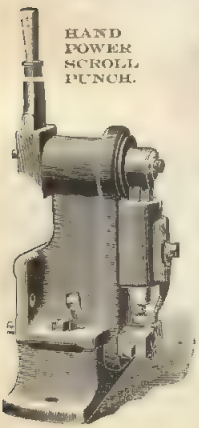


FIG. 2069.

Size	Diameter of Hole	Thickness	Depth of Jaw.	Weight. Lbs	Price.
No. 1	¾ in.	½ in (iron)	5 in.	260	$225 00
" 1	1 "	¼ " (steel)	8½ "	350	250 00
" 1	1¼ "	⅝ "	8½ "	650	325 00

LIGHT CHANNEL IRON PUNCH

No.	Depth of Jaw. Inches.	Diam. of Hole. Inches.	Thickness of Iron to be Punched.	Centers of Holes from Edge of Jaw. Ins.	Weight Lbs	Price.
10	2½	½	⅜	½	70	$35 00
20	3½	⅝	⅜	⅝	125	45 00
15	4½	¾	½	⅝	180	80 00
12½	11½	1	½	¾	450	100 00

One round punch and die furnished with each machine. Square punches and dies double the price of round.

HAND POWER SCROLL PUNCH.

For punching holes through small scroll bends, and in order to obtain the greatest stiffness with small size, the dies are located in the ends of a tool-steel bar passing through the body of the machine, the bar being 1 inch in diameter at one end and flattened to a larger circle at the other, and the centers of dies ⅝ inch from end of bar. A small table for punching flat iron is shown in position attached to die bar.

Capacity of tool, ¼-inch hole in ¼-inch iron. The tool and stand weigh 60 lbs.
Price, with two Punches and two Dies, $30.00.

LIGHT CHANNEL IRON PUNCH.

FIG. 2068

PUNCHES.—Continued.

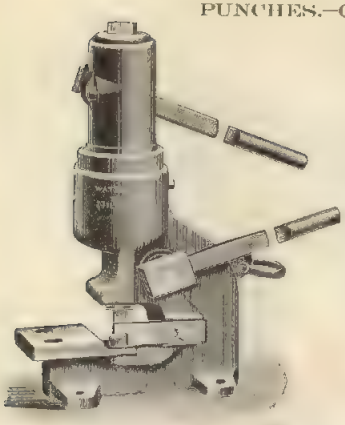


FIG. 2070.

HYDRAULIC PUNCH.

For Spike Slot of Railroad Rail.

Punching the spike slots in the base of heavy rails for regular railroad service, as is frequently desired on switches and curves, and is the first tool of the kind which is convenient, expeditious and reliable, making a clean cut slot. As in the Improved Hydraulic Punch, the punch may be brought down to the work without the labor of pumping, being both raised and lowered by the lower lever shown in the illustration.

The No. 2 with 1¾-inch jaw, weighing about 90 lbs., has sufficient power to punch the ¾ x ¾ slot in the side of the base of 80-lb. steel rail. Guides are placed on the side for determining the depth, and also act as strippers.

Punch and Die Special fitted with Standard Gland No 1.

Weight, 180 lbs. Price, $150 00

HYDRAULIC PUNCH.

For Web of Railroad T Rail.

This tool is shown as the first ever made which can be conveniently used by an ordinary gang of men and which does not require to have the rail removed from the roadbed in order to punch it.

By the use of our quick-acting lever, shown in the middle of the cut, the ram may be worked in and out a distance of two inches without the loss of time and labor of pumping. In mounting the die in a sliding bolster, which latches it in position, an additional opening is obtained without the extra weight, which would be necessary to get a four-inch movement and also a reservoir of sufficient capacity. A guide is placed at the top of the jaw which, once set for any pattern of rail, will cause all holes to be punched at the same height. In returning the punch to the cylinder the pumping socket must be brought down against the head log before the quick-working lever can be used.

One Round Punch and Die furnished with each tool

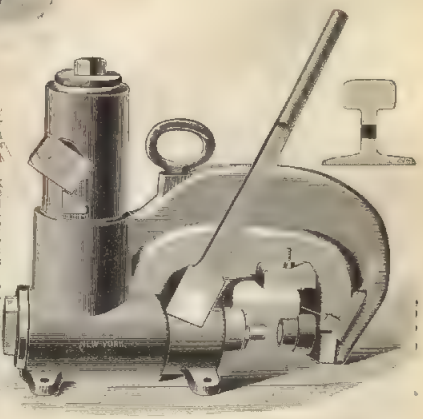


FIG. 2071.

Size.	Diameter of Hole	Weight of Rail.	Number of Gland.	Number of Punch	Number of Die	Weight lbs.	Price.
2	⅞ in.	60 lbs.	5	5	Special	200	$150 00
3	⅞ "	80 "	5	5	"	375	200 00
4	¼ "	90 "	6	6	"	400	225 00

STEEL SCREW PUNCH.

FIG. 2072

Number	Thickness of Iron.	Size of Rivet.	Gap	Weight.	Price.
0	¼	⅜	1 ½	17	$24 00
1	⅜	½	1 ½	27	30 00
2	½	¾	2	40	40.00
3	¾	¾	2½	60	60.00
3½	¾	⅞	4	90	75.00

PRICES FOR EXTRA PUNCHES AND DIES FOR SCREW PUNCHES.

Price per pair for No. 0 punch.... ....$3.50 Price per pair for No. 3 punch.....$5.00
" " " 1 " . 4 00 " " " 3½ " 5.00
" " " 2 " ... ... 4 00 " " " 4 " .. 5.00

HYDRAULIC SCREW PUNCHES.

HYDRAULIC SCREW PUNCH.

FIG. 2073

HYDRAULIC HEAD PUNCH.

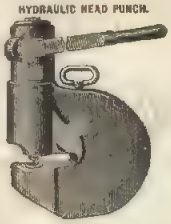


FIG. 2074.

Number	Thickness.	Rivet.	*Gap.	Weight	Price	*Gap.	Price.
0	¼	⅝	2	40	$70 00	3½	$ 80 00
1	⅜	⅝	2	50	80 00	3½	90 00
2	½	⅝	2	60	100 00	3½	110 00
3	⅝	⅞	2	70	120 00	3½	130.00
4	¾	⅞	2	90	150 00	3½	170.00
5	⅞	⅞	2	120	200 00	3½	220.00
7	1	1	2	280	250 00	4	275.00

*Gap refers to distance from edge of sheet to center of hole. Greater distance to order.

HYDRAULIC SCREW PUNCH.

HORIZONTAL SCREW.

This style of punch can be operated in a very small, cramped place, and is especially useful on angles and braces which are attached to plates, as in elevated railroad and bridge work. Punch can be operated at any angle.

Fig. 2075

Size.	Diameter of Hole.	Thickness of Iron.	Depth of Jaw.	Number of Stand.	Number of Punch.	Number of Dies.	Weight, lbs.	Price.
1	½ in	⅜ in	2 in.	4	4	3	82	$64.00
2	⅝ "	½ "	2½"	5	5	4	90	90 00
3	¾ "	¾ "	3⅜"	5	5	4	90	110 00
4	⅞ "	1 "	4 "	6	6	4	140	140.00

One Round Punch and Die furnished with each tool. Square or Oval Punches double the price of Round.

GENUINE "KESTNERS'" LINE OF KID BODY DOLLS.

These dolls are made of the best quality kid, perfect in every respect and stamped with genuine "Kestners'" trademark...Fine quality bisque head, with closing eyes and curly hair, covered bust.

All with closing eyes.

3834-22½ Imitation stockings and shoes. Height, 10¾ in. 1 dozen in box. Style of illustration No. 75.....Per doz., $2.25

3835-40 Lace stockings. Height, 13½ in. ½ dozen in box. Style of illustration No. 75.....Per doz., 4.00

3836-60 Riveted hips, lace stockings and shoes. Height, 14¾ in. ½ dozen in box. Style of illustration No. 78.....Per doz., 6.00

3837-90 With riveted hip, knee, arm and elbow joints, bisque arms, lace stockings and shoes. Height, 15 in. 1-12 dozen in box. Style of illustration No. 78.....Per doz., 9.00

3838-120 With riveted hip, knee, arm and elbow joints, bisque arms, lace stockings and shoes. Height, 15 in. 1-12 dozen in box. Style of illustration No. 78.....Per doz., 12.00

No. 75

No. 78

"KESTNERS'" KID BODY DOLLS.

With riveted hip, knee, arm and elbow joints, beautiful bisque head, closing eyes, extra fine quality sewed and parted wig, long curly hair, lace stockings and shoes.. See illustration No. 80.

All with closing eyes.

3839-150 Height, 16½ in. 1-12 dozen in box.....Per doz., $15.00

3840-180 Height, 17½ in. 1-12 dozen in box.....Per doz., 18.00

3841-210 Height, 19 in. 1-12 dozen in box.....Per doz., 21.00

3842-240 Height, 20 in. 1-12 dozen in box.....Per doz., 24.00

3843-300 Height, 21 in. 1-12 dozen in box.....Per doz., 30.00

3844-360 Height, 22½ in. 1-12 dozen in box.....Per doz., 36.00

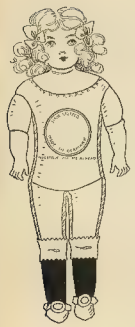
3845-420 Height, 23½ in 1-12 dozen in box.....Per doz., 42.00

No. 80.

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

PINK LINEN BODY DOLLS WITH METAL HEADS.

Indestructible metal head made of fine enameled bisque on solid brass, long curly hair, flexible hip and knee joints, imitation stockings, tan shoes. Style of illustration No. 105.

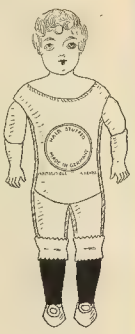


No. 105

3878-50	Steady eyes. Height, 13¾ in	1-3 dozen in box..Per doz., $6.00
3879-75	Closing eyes, parted wig tied with ribbons, covered bust Height, 14 in.	1-3 dozen in box..... Per doz., 7.50
3880-90	Closing eyes, parted wig tied with ribbons, covered bust Height, 15½ in	1-12 dozen in box..... Per doz., 9.00
3881-120	Closing eyes, parted wig tied with ribbons, covered bust Height, 16½ in.	1-12 dozen in box Per doz., 12.00
3882-150	Closing eyes, parted wig tied with ribbons, covered bust Height, 18¾ in.	1-12 dozen in box.....Per doz., 15.00

PINK LINEN BODY DOLLS WITH CELLULOID HEADS.

Hair stuffed body, flexible hip and knee joints, covered bust, unbreakable celluloid head with painted hair, imitation stockings, tan shoes...Style of illustration No. 108.



No. 108

3883-22½	Painted eyes. Height, 9 in.	1 dozen in box.....Per doz., $2.25
3884-30	Painted eyes. Height, 12 in.	1 dozen in box....Per doz., 3.00
3885-40	Glass eyes. Height, 15 in.	½ dozen in box.....Per doz., 4.00

PATENT WASHABLE DOLLS.

Paper mache head, hands and feet, Rembrandt hair, glass eyes, dressed in colored chemise, lace edging around neck, painted shoes. Style of illustration No. 110.

No. 110

3890-4½	Height, 9½ in	1 dozen in box.....Per doz., $0.45
3891-7½	Height, 12 in.	1 dozen in box... .....Per doz., .75
3892-10	Height, 13½ in	1 dozen in box..... .. ... Per doz., 1.00

PATENT WASHABLE DOLLS.

Paper mache head, hands and feet, painted shoes and stockings, head has fine features, glass eyes and long flowing hair, glazed muslin chemise trimmed with wool cord and lace edging. Style of illustration No. 115.

No. 115

3893-15	Height, 15 in.	1 dozen in box . ...Per doz., $1.50
3894-20	Height, 20 in.	½ dozen in box..... .....Per doz., 2.00
3895-22½	Height, 25 in.	½ dozen in box ..... Per doz., 2.25
3896-30	Height, 26 in.	½ dozen in box Per doz., 3.00
3897-40	Height, 31 in.	1-3 dozen in box..... .....Per doz., 4.00
3898-60	Height, 33 in.	1-6 dozen in box... .....Per doz., 6.00
3899-90	Height, 38 in.	1-6 dozen in box.....Per doz., 9.00
3900-120	Height, 40 in.	1-6 dozen in box..... .... .Per doz., 12.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

PINK LINEN BODY DOLLS.

3850-4 Paper mache head, painted hair, flexible hip and knee joints, imitation patent leather shoes and stockings. Height, 10 in. 1 dozen in box.....Per doz., $0.40

3151-7½ Bisque head, glass eyes, Rembrandt hair, imitation patent leather shoes, flexible hip and knee joints, imitation stockings. Height, 11½ in. 1 dozen in box.....Per doz., .75

No. 85

PINK LINEN BODY DOLLS

Hair stuffed body, covered bust, imitation stockings, tan shoes, fine linen body with flexible hip and knee joints, fine bisque head with closing eyes and curly hair. See illustration No. 85.

3852-20 Height, 13½ in. 1 dozen in box.....Per doz., $2.00

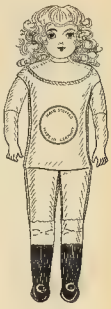
3853-22½ Height, 14½ in. ½ dozen in box.....Per doz., 2.25

3854-40 Height, 17 in. ½ dozen in box.....Per doz., 4.00

3855-45 Height, 18½ in. ½ dozen in box.....Per doz., 4.50

3856-60 Height, 19½ in. 1 ½ dozen in box.....Per doz., 6.00

3857-75 Height, 21½ in. ½ dozen in box.....Per doz., 7.50



No. 90

IMITATION KID BODY DOLLS.

Hair stuffed body, with flexible hip and knee joints, bisque head, shoes and imitation stockings. See illustration No. 90.

3859-9 Rembrandt hair, steady eyes. Height, 9¾ in. 1 dozen in box.....Per doz., $0.90

3860-12½ Rembrandt hair, steady eyes. Height, 12½ in. 1 dozen in box.....Per doz., 1.25

3861-18½ Curly hair, closing eyes and covered bust. Height, 13½ in. 1 dozen in box.....Per doz., 1.85

3862-20 Curly hair, closing eyes, covered bust. Height, 14 in. 1 dozen in box.....Per doz., 2.00

3863-22½ Curly hair, closing eyes and covered bust. Height, 14½ in. 1 dozen in box.....Per doz., 2.25

3864-35 Curly hair, closing eyes, covered bust Height, 17 in. ½ dozen in box.....Per doz., 3.50

3865-45 Curly hair, closing eyes, covered bust Height, 18 in ½ dozen in box.....Per doz., 4.50

3866-60 Curly hair, closing eyes, covered bust Height, 19½ in. ½ dozen in box.....Per doz., 6.00

No. 95

PINK CLOTH BODY DOLLS.

Riveted hip joints, bisque head with closing eyes and long curly hair, lace stockings, shoes and covered bust. See illustration No. 95.

All with closing eyes.

3867-22½ Height, 13¾ in. 1 dozen in box.....Per doz., $2.25

3868-40 Height, 17½ in. ½ dozen in box.....Per doz., 4.00

3869-60 Height, 19 in. ½ dozen in box.....Per doz., 6.00

3870-75 Height, 21½ in. 1-3 dozen in box.....Per doz., 7.50

3871-90 Height, 24 in. 1-12 dozen in box.....Per doz., 9.00

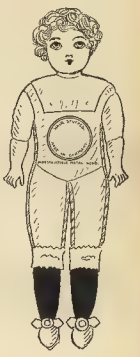
PINK LINEN BODY DOLLS WITH METAL HEADS

Indestructible metal head made of fine enameled bisque on solid brass, flexible hip and knee joints, imitation stockings, tan shoes, hair stuffed body, painted hair. Style of illustration No. 100.

3875-20 Height, 10¾ in. ½ dozen in box Per doz., $2.00

3876-30 Height, 12 in. ½ dozen in box. Per doz., 3.00

3877-40 Height, 14 in. 1-3 dozen in box. Per doz., 4.00



No. 100

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CELEBRATED GOLD MEDAL DOLLS WITH RIVETED HIP, KNEE AND ARM JOINTS AND WALTERHAUSEN SEWED WIG.

This doll is made of the finest quality kid and perfect in every respect. Fine quality bisque head, very pretty features, closing eyes, covered bust, lace stockings and shoes. Style of illustration No. 60.

All with closing eyes.

3806-60	Height, 13½ in.	1-12 dozen in box	Per doz., $5.00
3807-80	Height, 15½ in.	1-12 dozen in box	Per doz., 8.00

The following have pearl necklace and turning head.

3808-120	Height, 18 in.	1 12 dozen in box	Per doz., 12.00
3809-150	Height, 19 in.	1-12 dozen in box	Per doz., 15.00
3810-180	Height, 20 in.	1-12 dozen in box	Per doz., 18.00
3811-210	Height, 21 in.	1-12 dozen in box	Per doz., 21.00
3812-240	Height, 22 in.	1-12 dozen in box	Per doz., 24.00
3813-300	Height, 23½ in.	1 12 dozen in box	Per doz., 30.00
3814-360	Height, 24½ in.	1-12 dozen in box	Per doz., 36.00
3815-420	Height, 27 in.	1 12 dozen in box	Per doz., 42.00
3816-480	Height, 28½ in.	1-12 dozen in box	Per doz., 48.00
3817-540	Height, 31 in.	1-12 dozen in box	Per doz., 54.00

No 60

CELEBRATED "GOLD MEDAL" KID BODY "BOY" DOLLS.

Fine bisque head, closing eyes, open mouth showing teeth, covered bust, real shoes, short curly hair. See illustration No. 65.

All with closing eyes.

3818-25½	Imitation stockings.	Height, 13 in.	1 dozen in box. Per doz., $2.25
3819-40	Lace stockings	Height, 15½ in.	½ dozen in box. Per doz., 4.00
3820-75	Lace stockings	Height, 19 in.	½ dozen in box. Per doz., 7.50
3821-90	Lace stockings	Height, 21 in.	1-12 dozen in box. Per doz., 9.00

No 65

GOLD MEDAL KID BODY DOLLS WITH METAL HEADS.

Indestructible metal head. Made of fine enamel bisque on solid brass. See illustration No. 70.

3822-60	Long curly hair, shoes and imitation stockings	Height, 14½ in. ½ dozen in box. Per doz., $5.00
3823-85	Long curly hair, closing eyes, covered bust, parted wig hair tied with ribbon.	Height, 14 in. ½ dozen in box Per doz., 8.50
3824-120	Long curly hair, closing eyes, covered bust, parted wig, hair tied with ribbons, shoes and lace stockings.	Height, 17 in. 1-12 dozen in box. Per doz., 12.00

No. 70

"GOLD MEDAL" KID BODY DOLLS WITH METAL HEADS.

Finest quality kid body with riveted hip, knee and arm joints, covered bust, lace stockings and shoes, indestructible metal head with long curly hair, parted wig tied with ribbon. See illustration No. 70.

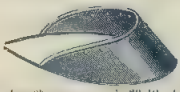
All with closing eyes.

3826-120	Height, 16 in.	1-12 dozen in box	Per doz., $12.00
3827-150	Height, 18 in.	1-12 dozen in box	Per doz., 15.00
3828-180	Height, 18¾ in.	1-12 dozen in box	Per doz., 18.00
3829-240	Height, 19½ in.	1-12 dozen in box	Per doz., 24.00
3830-300	Height, 21¾ in.	1-12 dozen in box	Per doz., 30.00
3831-360	Height, 24 in.	1-12 dozen in box	Per doz., 36.00
3832-420	Height, 25 in.	1-12 dozen in box.	Per doz., 42.00
3833-480	Height, 28 in.	1-12 dozen in box	Per doz., 48.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

ENGRAVERS' SUPPLIES.

ENGRAVERS' BRASS PRACTICE RINGS
No. 2586 Per dozen $0 25



No. 2595 Ivy Stake ... $0 10 ... $1 00

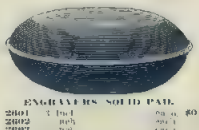
Watch Cap Stencils.
To Fit all Size Cases.
No. 2597 Set of 6 $0 50

Engravers' Reflector, or Light Condenser, on Stand
No. 2598 ... $1 25

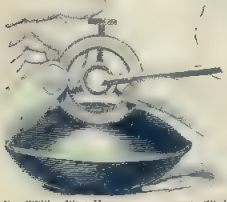
NICKEL PLATED EYEGLASS STAND
No. 2599 Each $0 75
Can be set to all positions in a moment by the use of one small thumb screw

ENGRAVERS IRONWOOD POLISHING BLOCK
No. 2600 Size ... $0 10

ENGRAVERS' RUBBER MAGNIFYING GLASS
... Lady's Loupe
Size ...
No. 2607 ... $0 15
No. 2608 ... 40
No. 2609 ... 75
... Size
No. 2610 ... $1 25
No. 2611 ... 1 50

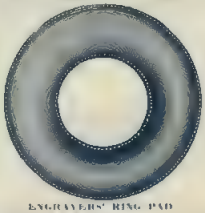


ENGRAVERS SOLID PAD.
No. 2601 3 inch ... $0 15
No. 2602 inch ... 15
No. 2603 inch ... 50
No. 2604 inch ... 60
No. 2605 inch ... 70



No. 2606 Ring H... $0 40

No. 2612 ... $0 15



ENGRAVERS' RING PAD
No. 2613 ... $0 60
No. 2614 ... 95

No. 2616 ... $0 25

ENGRAVERS' WAX
No. 2617 ... $0 25

No. 2617 ... $0 15
... for Lining up Work

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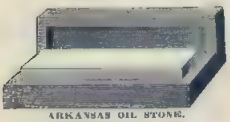
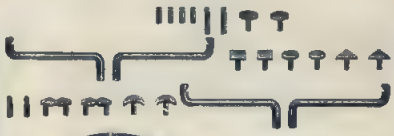
$10.00 Cash With Order. **COMPLETE ENGRAVERS' OUTFIT.** $10.65 Less 6 Per Cent.



ARKANSAS OIL STONE.
4 Inch, Soft.

ENGRAVERS' TRANSFER ROLL.

BOXWOOD POLISHING BLOCK



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SET OF 12 GRAVERS.
With Handle, in Box

KING BEE ENGRAVING BLOCK.
Will Hold Anything. Guaranteed Equal to any Engraving Block
Irrespective of Price

ADJUSTABLE EYE GLASS STEM.
Nickel Plated

RUBBER MAGNIFYING GLASS
Single Lense

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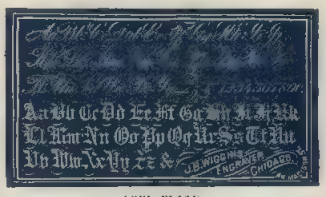

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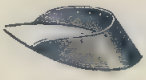

EYE SHADE.

POLISHED COPPER PLATE.

DESIGN AND TEXT BOOK.

IMPROVED GRAVER SHARPENER.

BRASS PRACTICE RINGS

No 2619 King Bee Engraving Block with Pad and Attachments
No 2620 Engravers' Outfit as Illustrated, with King Bee Engraving Block

complete $ 5 00
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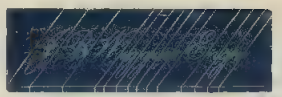
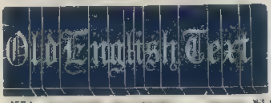
Or $10 00 Cash with Order

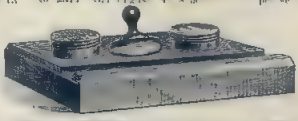
TOOLS "E,"

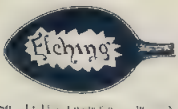
ENGRAVERS' SUPPLIES.

WIGGINS' IMPROVED FORM FOR ENGRAVERS.









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COPPER PLATES FOR ENGRAVERS

PINNED COPPER PLATES

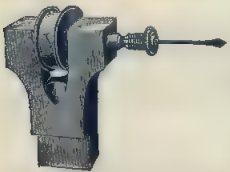
No. 2592 WIGGINS HAND ENGRAVED COPY PLATE. Each, $1.25

DRILLS, EYEGLASSES, EMERY WHEELS AND ENGRAVERS' TYPE.

No 2525 Dr l Stock and Drill each $0 25
No 2526 Nickel Plated ..... each, .35

No 2527 Drill Stock and Drill each $0 10

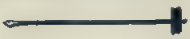
No 2528 Drill, Stock each $0 25
With Adjustable Chuck and Drill



No 2531 Drill Stock with Drill..each, $0 35
No 2532 Nickel Plated ..each, 50
No 2533 Drills for same ...per doz., 20

Per Dozen
No 2529 Gut Drill Bow Cord.....$0 15

Per Dozen
No. 2530. Horse Hair Drill Bow Cord. . $0 20



Per Dozen
No 2534 Pivot Drills, Small .$0 10
No 2535 Pivot Drills, Large 10

WHALEBONE DRILL BOW.
No. 2536 Small. . . each, $0 10
No. 2537 Medium each, 15
No 2538 Large .each 20

No 2539 Adjustable Drill Bow each, $0 25

RUBBER EYE GLASS.
Each
No 2540 1 in. Focus 40c
No 2541 1½ in. Focus 25c
No 2542 2 to 5 in. Focus 20c

RUBBER EYE GLASS
Double Lense
Each
No. 2543. ⅝ in. Focus 40c

RUBBER EYE GLASS
With spring
Each
No. 2544 2 to 5 in. Focus 35c

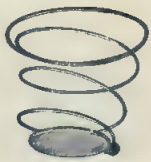
ALUMINUM EYE GLASS.
Each.
No 2545 2 to 5 in. Focus 25c

RUBBER EYE GLASS.
Each.
No. 2546. ½ in. Focus 20c

PATENT EYE GLASS.
No. 2547. Each, $0.50

The shape of the frame insures that the line of vision goes right through the center of the lens instead of slanting as in other eyeglasses as dotted line f g. in illustration indicates.

EAR PIERCER
No. 2558. Nickel Plated. . . . . each, $0 75



FOLDING POCKET EYE GLASS.
With Leather Case.
No. 2548. 2 to 5 in. Focus. . . .each $0 50

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Silas B. Robinson, Jr.
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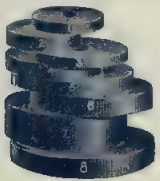
Adamson.
No. 2562. Per Set, $2.75

DIRECTIONS:
Set up the desired inscription, rub the finger over Engravers' Transfer Wax, then over the face of the type thus make the impression.



EMERY WHEELS.
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No 2550 2 x⅛ .. each, 15
No 2551 2 x¼ .. each, 25
No 2552 2½x½ each 30
No 2553 2½x¾ . each, 40
No 2554 3 x1 .. each, 60
No 2555 Emery Paper, best .per dozen .25

No. 2563. With 2 Arms, as illust., each, $2 50
No. 2564 With 3 Arms. .. each, 3 25

Rifle Sights.

Carbine Rear.

Each

No. 34—Carbine Rear Sights, for Models 1866 and 1873 Winchester Rifles, ... $1.75

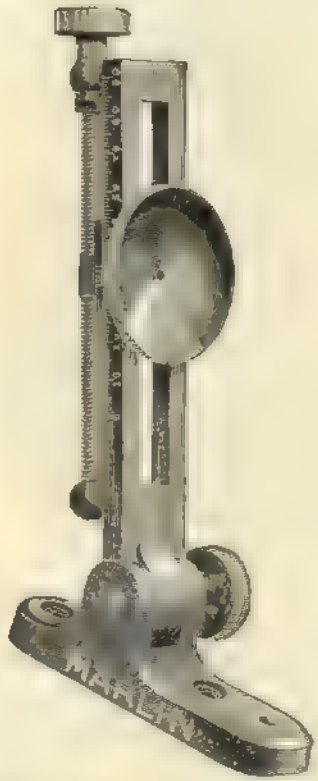
Marlin Improved Graduated Peep.

Each

No. 36—Marlin's Improved Graduated Rear Peep Sights, $3.00

Mid-Range Vernier Peep.

No. 40—Winchester Vernier Mid-Range Rear Peep Sight. . . . . Each $4.00



Marlin Improved Vernier Mid-Range Peep.

Each

No. 38—Marlin's Improved Vernier Mid-Range Peep Sights, ... $4.00

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No. 10—Large Ivory Bead Front Shot Gun Sights. $0 50

No. 11—Small Ivory Bead Rear Shot Gun Sights, ... 50

The engraving gives the appearance of the sights when aiming at a straight-way bird. The elevation of the Gun is right, but the Rear Sight shows that the Gun is out of line, which would not be discovered if these Sights were not used. This system is a great help both in field and at the trap.

Rifle Sights.

Savage Combination Rear, with Cup Disc.

No. 19—Savage Combination, Rear Sight with Cup Disc, ... Each $4.00
(Can be used with or without Disc.)

BAKER & HAMILTON

Savage Combination Rear.

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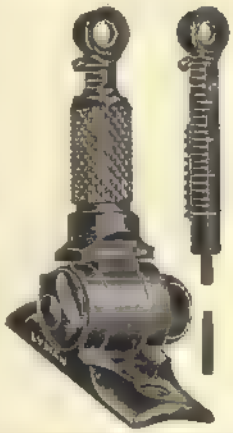
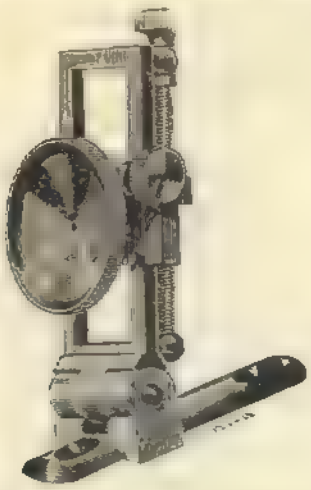


Lyman's Combination Rear.

No. 1—Lyman's Combination Rear Sight . . . Each $3.50



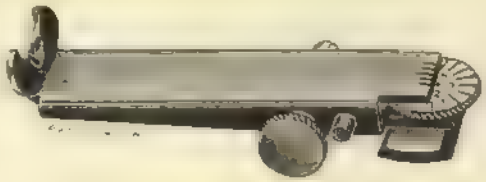
Savage Wind-Gauge Peep.

No. 170—Savage Wind-Gauge Rear Peep Sight, ... Each $1.50

Lyman's Combination Rear, with Cup Disc.

No. 2—Lyman Combination Rear Sight, with Cup Disc, ... Each $3.50

Rifle Sights.



	Each
No. 21—Micrometer Sight (with Set Screws) for Savage Rifles,	$2.00
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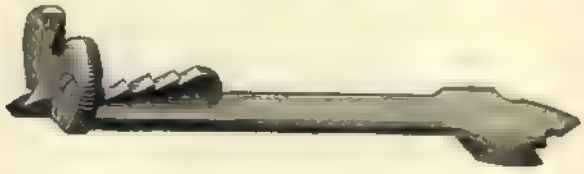
The Savage Micrometer Sight, No. 21, is beyond question the finest Open Rear Sight on the market. Being readily adjustable both for Elevation and Windage, it is not only a hunting sight but also a target sight, capable of the finest adjustment in all directions.

For Savage, Winchester, Marlin, Ballard, Colt, except 22 Cal.) and all other Rifles having rear slot on barrel



Sporting Rear Sight.

	Each
No. 10—Winchester Sporting Rear Sight	$0 80

	Each
No. 012—Rocky Mountain Rear Sight (Full Buckhorn),	$1.00

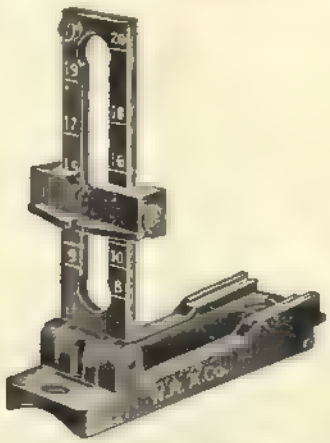
Lyman Receiver Sight.

	Each
No. 21—Lyman Receiver Rear Sight,	$3 50

The Lyman Receiver Sight is intended for rifles having a long firing bolt, like the Model 1895 Winchester which prevents the use of the Combination Rear Sight. Can furnish this sight for Models 86 and 95 Winchester and Model '93 Martin Rifles.

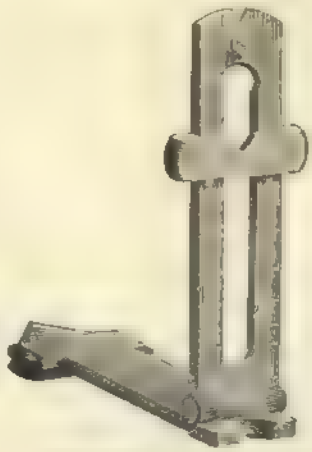
.32 Winchester Special Model 1894.
Rear Sight for Smokeless and Black Powder.

	Each
No. 92—Winchester Special Rear Sight for Model 1894 Winchester Rifles,	$3.00



Lee Military Sight.

	Each
No. 30—Lee Military Rear Sight	$2 00



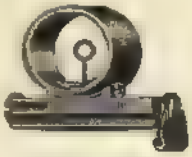
Sporting Leaf Sight.

	Each
No. 32—Sporting Leaf Rear Sight	$1.50

Rifle Sights.

Globe Front, with Interchangeable Disc.

	Each
No. 04—Globe Front Sights, with Interchangeable Discs, . . .	$1.25



Showing Globe. Showing Aperture

Lyman's Wind-Gauge Target.

	Each
No. 7—Lyman's Front Wind-Gauge Target Sights, ...	$3.50

Lyman's Patent Ivory Bead Wind-Gauge.

	Each
No. 18—Lyman's Front Patent Ivory Bead Wind-Gauge Sight, ...	$2.50

King's Combination Front, 3 in 1. .

	Each
	$1.50

Blank to Fill Rear Sight Slot.

	Each
No. 12—Slot Blanks to Fill Rear Slot. .	$0.25

Rocky Mountain Rear (Buckhorn).

	Each
No. 010—Rocky Mountain Rear Sight, (Buckhorn), ...	$0.50

Showing Aperture. Showing Globe.

Lyman's Patent Target.

	Each
No. 17—Lyman's Front Patent Target Sights.	$1.50

Lyman's Sporting Wind-Gauge.

	Each
No. 8—Lyman's Front Sporting Wind-Gauge Sights. . . .	$3.00

Leaf Sight.

	Each
No. 6—Lyman's Rear Leaf Sights, . .	$1.00

22 Cal Rear Sight. 22 Cal Front Sight.

No. 13—Marlin 22 Caliber Front and Rear Sights. . . . . .

	Each
	$0.50

Spirit Level.

	Each
No. 14—Spirit Level Sights, to Fill Rear Slot in Long Range Shooting, .	$1.00

Winchester Express.

	Each
No. 16—Winchester Express Rear Sights,	$1.50

Laib Co.
1148
Louisville Ky.

MINERS' POST DRILLS.

STEEL NOTCH WOOD POST MACHINE.

FIG. 3252.

Steel Notch Wood Post Machines, End Gear.

Price, with 2 and 4 foot Augers	each	7.50
Price, with 2 and 4 foot Augers and 2 foot extension to bore 6 foot hole	each	8.25
Price, with 2, 4 and 6 foot Augers, either A or B	each	9.00

In ordering machines with 2 and 4 foot Augers and Extension, to bore 6 foot hole always order the A.

Repairs.

A. MACHINE.			B. MACHINE.		
Price, 2 foot Extension	each	1.15	Price, 2 foot Auger	each	.90
Price, 2 foot Auger	each	1.00	Price, 4 foot Auger	each	1.80
Price, 4 foot Auger	each	2.00	Price, 6 foot Auger	each	2.70
Price, 6 foot Auger	each	3.00	Price, Patent Boxing; 8 or 12 Threads	each	1.00
Price, Patent Boxing; 8, 10 or 12 Threads	each	1.00	Price, Thread Bar; 8 or 12 Threads	each	2.25
Price, Thread Bar; 8, or 12 Threads	each	2.00	Price, Crank	each	.60
Price, Crank	each	.75	Price, Jack Screw for Wood Post	each	.50
Price, Jack Screw for Wood Post	each	.50	Price, Square Thread Bar Casting	each	.35
Price, Spiral Auger Socket	each	.50	Price, Flat Thread Bar Socket	each	.50
Price, Stem Post Casting	each	.50	Price, Clamp for Crank	each	.05
Price, Jack Screw Casting	each	.50	Price, Thumb Nut	each	.10

Price, No. 2 Wood Posts, 6 to 8 feet	each	3.50
Price, No. 3 Wood Posts, 4 to 6 feet	each	3.00
Price, No. 4 Wood Posts, 3 to 5 feet	each	2.50

Laib & Co. 1149 Louisville Ky.

MINERS' STEEL POST DRILLS.

A. SIDE GEAR MACHINE.

FIG. 3263.

Price, with 2 and 4 foot Augers ..... each	12.75
Price, with 2, 4 and 6 foot Augers and 2 foot Extension.....each	14.00
Price, with 2, 4 and 6 foot Augers .....each	15.00

For End Gear Drills complete as above, deduct 2.25 from list. For A: Grip Machines deduct from list of Side or End Gear Machines, 1.50. For Price of Drill less Boot, deduct 1.00.

Five Lengths of Posts, from 1½ to 10 feet.

Repairs.

Price, Boxing for End Gear..each	.90	Price, 4 foot Coal Auger.....each	2.00
Price, Gear Frame.....each	.50	Price, 6 foot Coal Auger.....each	3.00
Price, Small Cog Wheel.....each	.50	Price, 2 foot Extension Auger.....each	1.15
Price, Large Cog Wheel.....each	.75	Price, Complete Chair .....each	.60
Price, Auger Socket.... .....each	.50	Price, Crank.....each	.75
Price, Socket for Extension Auger ...each	.50	Price, Adjustable Double Crank..each	1.50
Price, Journal for Small Cog Wheel..each	.50	Price, Grip Complete.....each	2.75
Price, Thread Bar.....each	2.50	Price, Box and Arm.....each	1.50
Price, Grip Bars.....each	1.50	Price, Box Arm and Gear ..each	2.25
Price, Plain Wedge ....each	.25	Price, Tail Nut .....each	.20
Price, 2 foot Coal Auger.....each	1.00	Price, End Gear Borg.....each	1.00

Laib Co.
1160
Louisville Ky

MINERS' DRILLS.

RATCHET ROCK MACHINES.

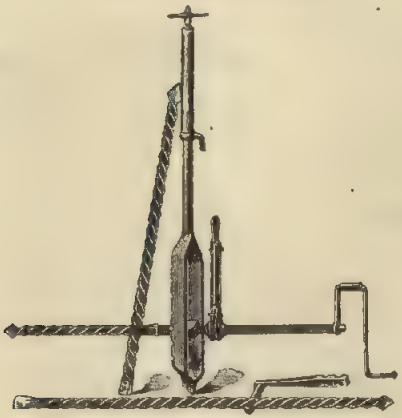


FIG. 3254.

Price, to drill 4 feet, with 2 and 4 foot Augers	each	22.50
Price, to drill 4 feet, with 1, 2, 3 and 4 foot Augers	each	26.00
Price, to drill 4½ feet, with 1½, 3 and 4½ foot Augers	each	25.00
Price, to drill 6 feet, with 2, 4 and 6 foot Augers	each	26.00

Repairs.

Price, Thread Bar, 10 or 12 Threads	each	2.50	Price, Ratchet Crank	each	2.50
Price, Boxing, 10 or 12 Threads	each	1.15	Price, Special Boot	each	1.50
Price, Jack Screw	each	.60	Price, Ring for Boot	each	.15
Price, Tail Screw	each	.20	Price, Universal Ratchet	each	2.50
Price, Rock Post complete	each	7.50	Price, Double Handle	each	1.50

Augers 1 foot to 6 foot inclusive; per foot, 1.00.

Laib Co.
1151
Louisville Ky

MINERS' TOOLS.

MACHINE BIT.

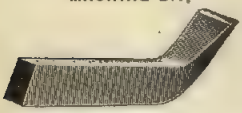


FIG. 3256.

MACHINE PICKS.

FIG. 3266.

Our Machine Bits and Picks are made of the best grade of Tool and Crucible Steel. Prices on application.

IRON AND COPPER TIPPED TAMP DRILLS.

FIG. 3257.

Length	feet	5 to 6	6½ to 7
Price, Iron; 1 inch in diameter	per dozen	15.60	17.00
Price, Copper Tipped; 1 inch in diameter	per dozen	36.00	36.00

IRON AND COPPER NEEDLES; 5 TO 7 FEET LONG.

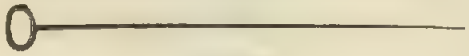


FIG. 3258.

Price, Iron; $\frac{7}{8}$ inch; Unwelded handles	per dozen	6.50
Price, Iron; $\frac{1}{2}$ inch; Welded handle	per dozen	8.00
Price, Copper; $\frac{1}{2}$ inch	per dozen	30.00

DOUBLE END SCRAPERS; 5 TO 7 FEET LONG.

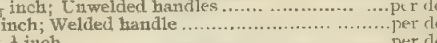


FIG. 3259.

SINGLE END IRON AND COPPER TAMPERS; 5 TO 7 FEET LONG.

FIG. 3260.

Price, Double End Scrapers	per dozen	3.00
Price, Iron, Single End Tampers	per dozen	10.80
Price, Copper, Single End Tampers	per dozen	30.00

SQUIB CASES.

FIG. 3261.
Size 1¼x7 and 1⅝x7 inches.

FILE CASES.

FIG. 3262.
Length 10 and 12 inches.

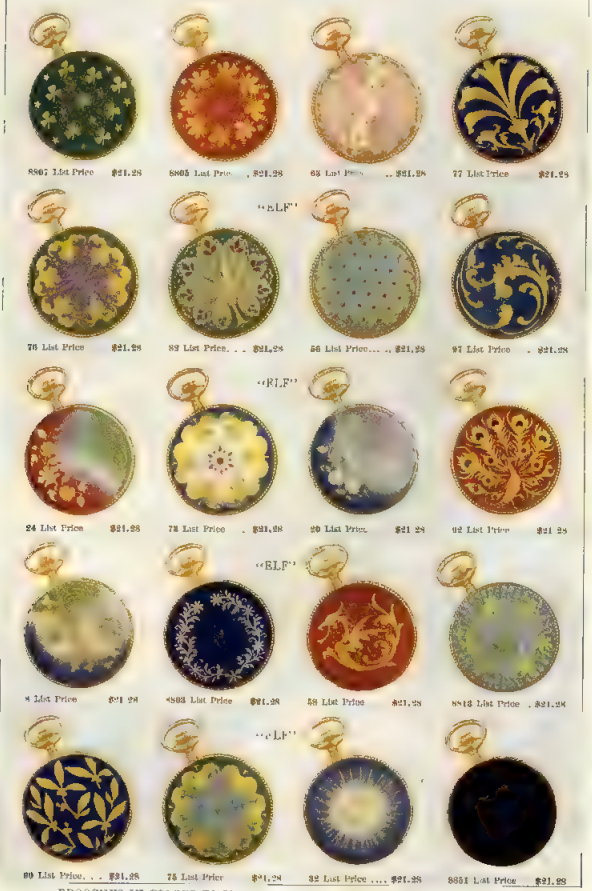
Prices on application.

The New England Watch Co.

10 LIGNE

ELF ENAMELED WATCHES

TWENTY YEAR GOLD-FILLED BOW, CROWN AND CENTER



8807 List Price $21.28 | 8805 List Price . $21.28 | 68 List Price .. $21.28 | 77 List Price $21.28

76 List Price $21.28 | 83 List Price. . . $21.28 | 56 List Price.... $21.28 | 97 List Price . $21.28

24 List Price $21.28 | 78 List Price . $21.28 | 20 List Price. $21 28 | 92 List Price $21 28

8 List Price $21 28 | 8803 List Price $21.28 | 58 List Price $21.28 | 8813 List Price . $21.28

90 List Price. . . $21.28 | 75 List Price $21.28 | 32 List Price .... $21.28 | 8851 List Price . $21.28

BROOCHES IN COLORS TO MATCH ABOVE WATCHES EXTRA LIST $1.60

The New England Watch Co.

15 LIGNE

CAVOUR ENAMELED WATCHES

TWENTY YEAR GOLD FILLED BOW, CROWN AND CENTER

9882 -Plain Dial
List Price..... $18.82

9875 Plain Dial
List Price . . . $18.82

9877 Plain Dial
List Price . . . $18.82

9878 Plain Dial
List Price . . . $18.82

9877 -Iridescent Dial
List Price . . . $15.96

9883 -Iridescent Dial
List Price . . . $15.96

9887—Iridescent Dial
List Price . . . $15.96

9875—Iridescent Dial
List Price . . . $15.96

9883 Fancy Dial
List Price . . . $14.46

9875—Fancy Dial
List Price . . . $14.46

9877 Fancy Dial
List Price . . . $14.46

9887 Fancy Dial
List Price . . . $14.46

BROOCHES IN COLORS TO MATCH ABOVE WATCHES—EXTRA LIST $1.60

The New England Watch Co.

15 LIGNE

CAVOUR GOLD FILLED AND STERLING SILVER
CHATELAINE WATCHES

9633 List Price $11.70
Brooch 140 Ex List 1.06

9631 List Price $11.70
Brooch 156 Ex List 1.06

9608 List Price $11.70
Brooch 162 Ex List 1.06

9637 List Price $11.70
Brooch 166 Ex List 1.06

9639 List Price $11.70
Brooch 161 Ex List 1.06

6208 List Price $8.00
Brooch 158 Ex List .84

6274 List Price $8.50
Brooch 152 Ex List .84

9619 List Price $10.64
Brooch 160 Ex List 1.06

6273 List Price $8.50
Brooch 156 Ex List .84

6271 List Price $8.50
Brooch 152 Ex List .84

6219 List Price $8.00
Brooch 158 Ex List .84

6286 List Price $8.50
Brooch 154 Ex List .84

The New England Watch Co.

10 LIGNE

ELF GOLD FILLED AND STERLING SILVER

CHATELAINE WATCHES

8473 List Price $18.08
Brooch 166 Ex List 1.06

8474 List Price $17.02
Brooch 160 Ex List 1.06

8471 List Price $17.02
Brooch Romanesque
Extra List .20

8475 List Price $17.02
Brooch 162 Ex List 1.06

8479 List Price $17.02
Brooch 166 Ex List 1.06

8476 Iridescent Dial,
List Price $20.20
Brooch 166 Ex List 1.06

8478 Iridescent Dial
List Price $20.20
Brooch 162 Ex List 1.06

8477 List Price $17.02
Brooch 164 Ex List 1.06

6483 List Price $12.76
Brooch 150 Ex List .84

6488 List Price $13.82
Brooch 150 Ex List .84

6481 List Price $12.76
Brooch, Romanesque
Extra List 1.00

6491 List Price $12.76
Brooch 150 Ex List .84

THE "GENUINE" OLIVER CHILLED PLOWS.

No. 40 Oliver Chilled Plow with Wheel and Jointer.

Beware of imitation plows and extras, claiming to be the genuine Oliver or equally good. The genuine plows and repairs, direct from the factory, are for sale in New England only by us and our authorized agents. All others are spurious and cannot be relied upon to fit well or do good work.

Our Net Price List.

Description.	Furrow.	Weight.	Plow.	With wheel.	With Wheel and Jointer or Cutter.
No. A. Light One-Horse	Furrow 4½ x 8 in.	50 lbs.	$4 50	$5 25	$6 75
" B. Medium "	" 5 x 10 "	65 "	6 00	6 75	8 25
" 10. Heavy "	" 5½ x 11 "	70 "	6 50	7 75	9 25
" 13. Very Light Two-Horse	" 6 x 11 "	80 "	8 00	9 00	11 00
" 19. Light "	" 6½ x 12 "	100 "	8 50	9 50	11 50
" 20. Medium "	" 7 x 13 "	110 "	9 00	10 00	12 00
" E. Heavy "	" 7 x 14 "	125 "	9 50	10 50	12 50
" 40. Heavy Two or Three-Horse	" 9 x 16 "	130 "	9 50	10 50	12 50

One extra Share given with each Plow.

MOULDBOARDS. Junior, are intended for use where it is desirable to turn furrow perfectly flat. Interchangeable with regular Mouldboards. Used on Nos. 20 and 40 only.

SHARES. Common Shares marked "C" are intended for use when the soil is in good plowing condition, as in spring work. Used on all sizes Oliver Plows.

Deep Suction Shares marked "D S" are intended for dry ground, or when the "C" shares do not run deep enough. Used on Nos. 19, 20, E and 40.

Short Shares marked "S" are for use in very hard, baked soil, or in stony land where the "D S" shares will not run deep enough. Used on Nos. 19, 20, E and 40.

Steel Shares are for use in soil containing roots, etc., that must be cut off, where our cast shares are not sharp enough. Used on Nos. 10, 13, 19, 20, E and 40.

Full Chilled Shares marked "F C" are for use in soil comparatively free from stones, where the common cast shares will not scour. They are made with the same suction as the "C" shares. Used on Nos. 20, E and 40.

Marsh or Meadow Shares, made of cast cast-steel, are for plowing marsh or meadow land, and are the only perfect shares made for that kind of work. They cut 16 inches wide and have sharp edges. Used on Nos. E and 40 only.

Our Net Price List of Extra Parts.

Numbers	Mould-boards	Standards	Land-sides	Cast Shares	Full Chilled Shares	Steel Shares	Marsh Shares	Braces	Set Handles	Single Handles	Beams	Jointers complete	Jointer Shanks	Jointer Moulds	Jointer Holders	Jointer Wedges	Cutter Stools	Wheels Only	Wheels Complete
A	$1 75	$1 25	$0 40	$0 20				0 75	$1 25	$0 50	$1 00	$1 25	$0 10	$0 35	$0 75	$0 50	$0 75	$0 40	$0 75
B	1 75	1 50	60	25				30	1 25	50	1 00	1 50	15	35	75	50	75	40	75
10	2 00	2 00	60	25		$1 00		30	1 25	50	1 00	1 50	15	35	75	50	75	40	75
13	2 25	2 25	65	25		1 25		40	1 50	50	1 25	2 00	15	35	1 00	50	75	50	1 00
19	2 50	2 25	75	30		1 50		50	1 75	50	1 25	2 00	15	35	1 00	50	1 00	50	1 00
20	2 75	2 25	75	30	$0 75	1 50		50	1 75	50	1 25	2 00	15	35	1 00	50	1 00	50	1 00
E	3 00	50	75	30	75	3 50	$ 50	50	1 75	50	1 25	2 00	15	35	1 00	50	1 00	50	1 00
40	3 00	2 50	75	30	75	3 50	3 50	50	1 75	50	1 25	2 00	15	35	1 00	50	1 00	50	1 00

Miscellaneous Repairs.

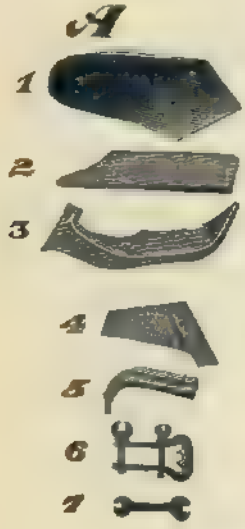
Handle Rounds, per pair	$0 10	Clevis Wrenches	$0.05
L. S. Handle Plates	10	Clevis Guide Pins	.03
One-Horse Clevises	.18	Clevis Shackle Pins	.03
Two-Horse Clevises	.28	Bolts for Jointer or Cutter Holder	.05
Clevis Hooks	.15	One-Horse Wrenches	.08
Clevis Shackles	08	Two-Horse Wrenches	.12

Holders for Cutters	Same as Jointers
Rolling Coulters 13 in., complete	$3.00
Rolling Coulter Yokes	.75
Rolling Coulter Cranks	.50
Rolling Coulter Beam Block	.25
Rolling Coulter Blades	1 [illegible]

THE "GENUINE" OLIVER CHILLED PLOWS.

Our Net Price List of Extra Parts.

Clevis Links, two-horse	$0.05	Rolling Coulter Eye Bolts	$0.25
Clevis Rings, one-horse	.05	Rolling Coulter Clamp Plates	.25
Wheel Standards, complete, one-horse	.40	Rolling Coulter Clamps, complete	1.00
Wheel Standards, complete, two-horse	.50	Rolling Coulter Centres, complete	.50
Wheel Hubs	.10	Rolling Coulter Centre Pins	.10
Wheel Hub Bolts	.05	Rolling Coulter Cone Bearings, set	.25
Wheel Caps or Sand Bands	.05	Rolling Coulter Flanges	.25
Bolts for Shares	.03	Bolts for Wheel Standards	.05
Bolts for Mouldboards and Landsides	.03	Bolts for end of Beams	.05
Bolts for Jointer Standards	.03	Bolts for Standards and Beams	.15
Bolts for end of Handle Brace	.03	Bolts for Spreading bottom of Handles	.10



Wearing Parts.

These cuts illustrate the metal parts of the Nos A, B, 10, 20 and 40 plows, and will answer for most of the other patterns. The numbers are explained as follows:

A, B, 10, 20 and 40.

No. 1	Mouldboard.
No. 2	Landside.
No. 3	Standard.
No. 4	Share.
No. 5	Handle Brace.
No. 6	Clevis.
No. 7	Wrench.

In ordering extra parts, use these terms, thus avoiding mistakes.

THE OLIVER STEEL BEAM CHILLED PLOWS.

No. 40 Oliver Steel Beam Chilled Plow with Wheel and Jointer.

The Oliver Nos 20 and 40 Plows, wood or steel beams, have full chilled sloping landsides. They are first-class in all respects and immensely popular, their sales exceeding those of any other plows in use. Always reliable, their great capacity, steady running and turning qualities make them valuable in sandy or alluvial lands and on farms containing a variety of soils. For extremely heavy clay soils and sod we furnish them with the "Junior **Mouldboards," turning a furrow 7 to 10 in. deep and 13 to 16 in. wide.**

When fitted with a "Steel Marsh Point" the No. 40 is unexcelled for the most difficult meadow plowing

Description.	Furrow.	Weight.	Plain.	With wheel.	With wheel and jointer or cutter.
No. 20 Medium Two-Horse.	7 x 13 in.	125 lbs.	$10.00	$11.00	$13.00
" 40 Heavy Two or Three Horse.	9 x 16 "	148 "	10.50	11.50	13.50

One extra share given with each Plow.

OLIVER STEEL ROAD AND GRADING PLOW.

This plow is made specially for road and heavy grading work and will penetrate the hardest soil.

It has a steel moul.board steel bar share, heavy standing coulter and is fitted with an extra strong beam well strapped and braced.

Is supplied with gauge iron or wheel as preferred.

Just the plow for contractors, street commissioners and road supervisors.

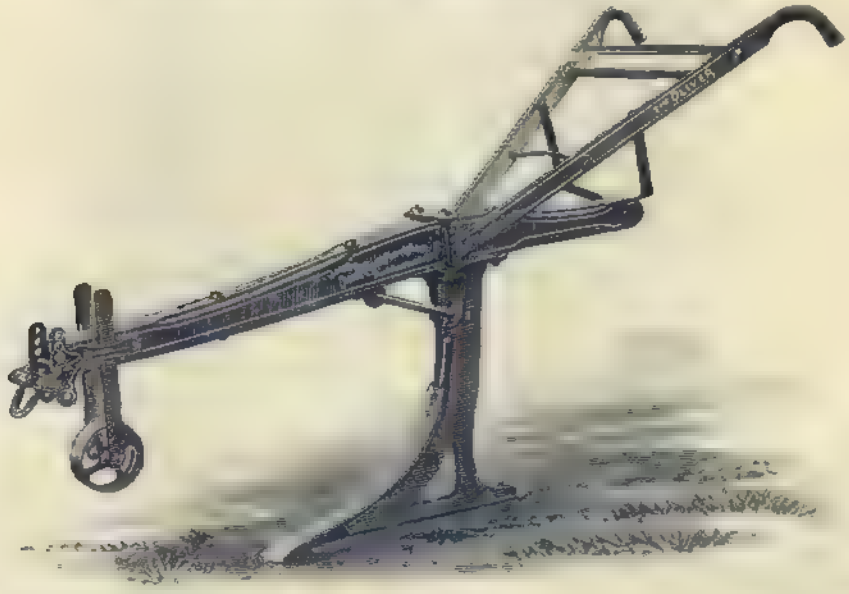
Made both right and left hand.

OUR NET PRICE LIST

Description.	Capacity.	Weight.	Complete as shown above.
No. 1 R and G	10 x 12 in	220 lbs	$30.00

Extra Road and Grading Steel Bar Shares, each, $5.00

OLIVER STEEL SUBSOIL PLOW.



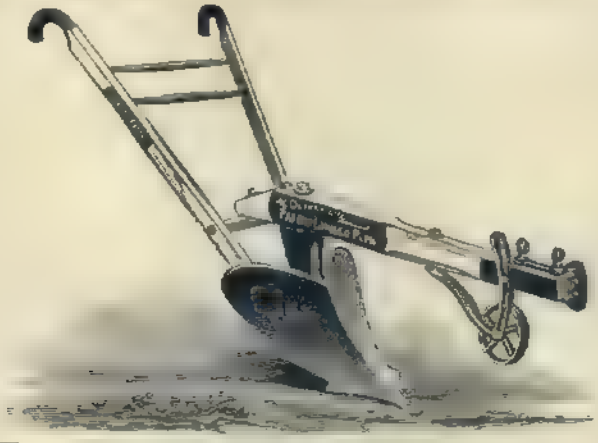
The Oliver Subsoiler is made upon approved principles and for practical subsoiling is without doubt one of the best of its kind. Simple, strong and durable. Heavy oak beam, well braced and strapped. Extra quality steel point made to penetrate and wear. Adjustable handles. Gauge wheel to control depth of plowing.

OUR NET PRICE LIST

Description.	Capacity.	Weight.	With Wheel.
Subsoiler	10 to 14 inches deep	143 lbs.	$14.00

Extra Subsoil Steel Points, each, . $1.50

OLIVER CHILLED DOUBLE MOULDBOARD PLOW.



Description	Capacity.	Weight.	Price	With Wheel.
No. Z, Double mouldboard	Double furrow, 16 in. spread	70 lbs.	$8.00	$9.00

One extra share given with each plow.

The "Z" Plow is especially adapted for cultivating crops where it is desirable to throw the beds into ridges and is also used quite extensively in the cultivation of potatoes and to give the last touch to corn plowing. It is now being used in almost every section of the country, and for the class of work for which it is intended, it is acknowledged to be a great labor-saving plow. Furnished with or without wheel as desired.

BRECK'S A B C SIDEHILL OR SWIVEL PLOW.

The great variety of Swivel Plows now on the market, all with more or less claim to perfection, must often put the farmer in a serious dilemma, as to which he should purchase. Every Swivel Plow no doubt has some points of merit, but we claim (and our claim is based upon the expressed opinions of nearly every experienced and practical farmer in New England) to have the only perfect Swivel Plow ever invented, as its work on hillside or level land attests.

PRICE LIST.

No. of Plow.	Description.	Plain. Mfrs. Price.	Plain. Net price	With Wheel. Mfrs Price.	With Wheel. Net Price	Wheel and Cutter. Mfrs Price	Wheel and Cutter. Net Price.
A	Steel Mouldboard .	$14 50	$11 60	$17 50	$14 00	$17 00	$13 50
B	" "	13.50	12 00	14.50	13.00	16 00	14.50
A	Hard Metal "	12.50	11 00	13.50	12.00	15 00	13.50
B	" "	11.50	10.00	12.50	11.00	14.00	12.50
C	Steel "	9 50	8 50	10 50	9.50	11.50	10.50
C	Hard Metal "	8.50	7.50	9.50	8.50	10.50	9.50

One extra point given with each plow.

	Sizes.	Depth of Furrow.	Width of Furrow.
A	Common Two-Horse	6 to 7 inches.	14 to 16 inches.
B	Light Two-Horse	5 to 6 "	12 to 14 "
C	One-Horse	4 "	10 "

For Repair List, see page 345.

PITTSBURGH RECORDING PRESSURE AND VACUUM GAGES.

Fig. 508.

Especially adapted for recording the pressure of Steam, Water, Gas, and Air; also Vacuum; and may be placed near the boiler, or any distance therefrom—for instance, in the office—always giving a true record of the fluctuations of pressure taking place in boiler, water and gas pipes, etc. They are made for all pressures.

For Steam, Gas and Air—30, 150, 200 and 300 lbs. per square inch.
For Water—100, 200 and 300 ft. of water column.
Also Vacuum 30 inches.

PRICES.

Pittsburgh Recording Gage, in highly nickeled case, with hinged brass or N. P. cover and lock, including 100 charts	$50.00
Solid Brass or Silver Metal case, [illegible]	40 00
Electric Alarm Attachment, for [illegible] gages	10.00
Additional Charts, per hundred	75
Recording Ink, per bottle	.25

SMITH-COURTNEY CO. RICHM

PITTSBURGH MARINE AND LOCOMOTIVE CLOCKS

WITH HOWARD, SETH THOMAS OR BOSTON MOVEMENTS.

The Boston and Howard movements are full jewelled, chronometer balanced, and have patent regulators. The cases are made with hinged rings and finished in the highest manner.

Fig. 588.

Size	Movement.	Time.	Brass Case.	Silver Metal N. P. Case O.G. or Open Ring.	Aluminum Case
5 inch Dial	Boston	8-day	$35 00	$36 00	$35 00
5½ "	"	"	38.00	39 25	38 00
6 "	"	"	40.00	43.50	40 00
6¾ "	"	"	45.00	47 00	45 00
8½ "	"	"	55 00	57.50	55 00
10 "	"	"	65 00	68.00	65 00
12 "	"	"	90 00	94.00	90 00
6¾ "	Seth Thomas	"	45.00	47.00	45 00
8½ "	"	"	55.00	57.50	55.00
10 "	"	"	65.00	68 00	65.00
12 "	"	"	90 00	94.00	90.00
6¾ "	Howard	"	70 00	72 00	70.00
8½ "	"	"	80.00	82 50	80 00
10 "	"	"	90 00	93 00	90 00
12 "	"	"	110 00	114.00	110 00

Different sizes from the above list shall be charged at the price of the next size larger

BRISTOL'S RECORDING PRESSURE GAGES.

Make a continuous record, day and night, of steam, water, gas, oil or air pressure. Adapted to all ranges of pressure. Users of steam in manufactories and mills, water and gas works, electric light and power stations, public buildings and institutions, hotels, etc., will find the instrument of great value, as it shows at a glance whether the boiler has received the attention upon which largely depends its safety and economy. The simple construction of the Bristol Gage insures uniformly accurate indications and records.

Fig. 534.

The illustrations show exterior and interior of the instrument. The pen arm is directly attached to the free end of a tube of flattened cross section which is bent into a helical form of four complete convolutions.

The tendency of pressure applied is to straighten or uncoil the tube which causes the pen arm to move over the range of the chart without the necessity of any intervening multiplying devices. The amount each coil is bent by the application of pressure is quite small and consequently the tube is not strained beyond its elastic limit.

The chart makes one revolution every twenty-four hours and is graduated with radial arcs and concentric circles. The divisions on the radial arcs correspond to differences in pressure, while those on the concentric circles correspond to the hours of the day.

Gages are also furnished with charts making one revolution in fifteen minutes, one hour, six hours, twelve hours and one week.

The Standard size chart is 8 inches diameter. Extra large size gages are made with a chart 12 inches diameter.

The instrument may be placed in the office or engine room, at any desired distance from boiler or vessel of which the pressure is to be recorded. If required, gages are furnished with electric alarm for high or low pressure.

Handsomely finished in Nickel Plate and Fully Guaranteed. No extra charge for Polished Copper Plate.

PRICES ON APPLICATION.

BRISTOL'S EXTRA LARGE RECORDING PRESSURE GAGES—CONTINUED.

12-INCH CHART.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
9601	37	10 in. head of water	0 to 4 inches.	0 to 54 inches	7 day.	$60.00	For gas or air.
9602	42	1 " " " "	0 " 6 "	0 " 8 "	7 "	60.00	" " "
9605	40	1 " " " "	0 " 6 "	0 " 8 "	24 hour.	60.00	" " "
9604	71	1 " " " "	0 " 9 "	0 " 12 "	7 day.	60.00	" " "
9619	2901	1 " " " "	0 " 18 "	0 " 26 "	24 "	60.00	" "
9605	90	1 " " " "	0 " 24 "	0 " 30 "	7 day.	60.00	" "
9606	70	1 " " " "	0 " 32 "	0 " 40 "	7 "	60.00	" "
9607	57	1 " " " "	0 " 32 "	0 " 41 "	24 hour	60.00	" "
9608	49	1 " " " "	0 " 32 "	0 " 40 "	7 "	60.00	" " "
9609	2906	1 lb. per sq. inch.	0 " 15 lbs.	0 " 21 lbs.	24 hour	60.00	" "
9610	74	2 lbs. " "	0 " 30 "	0 " 37 "	7 day.	60.00	" "
9611	56	" "	0 " 100 "	0 " 150 "	24 hour	60.00	" "
9612	43	" "	0 " 110 "	0 " 150 "	7 day.	60.00	" "
9613	46	" "	0 " 120 "	0 " 180 "	24 hour	60.00	" "
9614	62	10 " "	0 " 130 "	0 " 180 "	7 day.	60.00	" "
9600	876	5 " "	0 " 150 "	0 " 205 "	7 "	60.00	" "
9615	2907	5 feet head of water.	0 " 150 feet	0 " 175 feet	7 "	60.00	" "
9616	89	10 " " "	0 " 250 "	0 " 300 "	7 "	60.00	" "
9617	96	10 " " "	0 " 400 "	0 " 500 "	7 "	60.00	" "
9618	2911	2 atmospheres	0 " 700 lbs.	0 " 100 atmos.	24 hour	60.00	" "

EXTRA LARGE RECORDING COMBINATION VACUUM AND PRESSURE GAGES.

24-INCH CHART.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
9550	72	15 in. head of water.	3 in. vac. to 6 in. press.	4 in. vac. to 8 in. press	7 day.	$60 00	For gas or air.
9551	60	Vac. in merc. pres. lbs. sq. in.	Full " " 12 lbs. "	Full " " 15 lbs. "	24 hour	60 00	

Above prices include, with each gage, padlock and key, throttling union cock, one hundred charts and a bottle of special recording instrument ink.

Aluminum case, reducing weight one-half (extra net)	$10.00
Electric alarm attachment (extra net)	10.00
Special chart graduated to order (extra net)	20.00
Additional charts	Per hundred 1.50
" " (copying ink)	" " 1.75
" " (7 day, 2 colors)	" " 2.00
Special recording gage ink (in bottles), one ounce, 25 cents; four ounce 60 cents, half pint $1.00; pint, $2.00; quart	4.00

SMITH-COURTNEY CO. RICHMOND, VA.

BRISTOL'S RECORDING THERMOMETERS.

For Dry Kilns, Ovens, Heaters, Closed Spaces, Wash Tubs, Hot Blasts, Chimney Gases, Liquids, Air and Gases in Pipes, Feed Water for Steam Boilers, etc.

For working Ranges of Temperature between 100 and 500 degrees Fahrenheit—Continuous Record of Temperature day and night.

In ordering, state maximum working range of temperature.

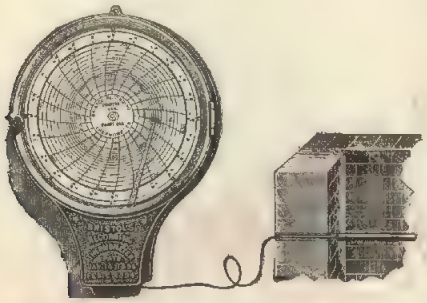


Fig. 535.

8-INCH CHART.

BULB PLAIN.

Catalogue No.	Chart No.	Graduations.	Working Range.	Total Scale.	One Revolution of Chart.	List Price.	Remarks.
6500	618	100° Fahr. above 50°	50 to 155° Fahr.	32 to 175° Fahr.	12 hour	$60.00	Increasing Graduations.
6501	616	50 " " 100°	60 " 180° "	32 " 200° "	7 day	60.00	
6502	611	50 " " 100°	60 " 180° "	32 " 200° "	24 hour	60.00	
6503	607	50 " " 150°	80 " 212° "	32 " 230° "	24 "	60.00	
6504	623	50 " " 180°	100 " 250° "	32 " 270° "	7 day	60.00	
6505	600	50 " " 150°	100 " 250° "	32 " 270° "	24 hour	60.00	
6506	602	50 " " 220°	120 " 280° "	32 " 300° "	24 "	60.00	
6507	606	50 " " 220°	130 " 280° "	32 " 300° "	1 "	60.00	
6508	603	50 " " 240°	150 " 310° "	32 " 330° "	24 "	60.00	
6509	609	50 " " 300°	180 " 380° "	32 " 400° "	24 "	60.00	
6510	605	50 " " 400°	210 " 480° "	32 " 500° "	24 "	60.00	
6511	617	20 Cent. " 60°	20 " 100° Cent.	0 " 110° Cent.	24 "	60.00	
6512	614	20 Reau. " 60°	20 " 80° Reau.	0 " 88° Reau.	24 "	60.00	

Above prices include, with each Thermometer, Padlock and Key, One Hundred Charts and Bottle of Special Recording Ink.

Electric Alarm Attachment (extra net) $10.00
Special Chart, Graduated to Order (extra net) 20.00
Special Union Connection for Bulb (extra net) ..... ½ inch 2.00
1 " 3.00

Laib Co.
759
Louisville Ky.

FIG. 2036.

BRAZED STEEL PYRAMID OILERS.

A Vent Controls the Flow of Oil; Any Length Nozzle, Straight or Curved, all Sizes Interchangeable.

Number	30	31	32
Capacity	1 pint	1 quart	2 quarts
Nozzle ..... inches	8	10	12
Price ..... per dozen	9.00	10.00	12.00

FIG. 2037.

STEEL AND BRASS RAILROAD OILERS.

Bronzed Steel Oilers.

Number	10	11	111
Capacity	1 pint	1 quart	2 quarts
Diameter ..... inches	3⅜	4⅛	5
Height ..... inches	5	6	8
Nozzle ..... inches	12	18	10 or 14
Price ..... per dozen	14.00	18.00	20.00

Brass Oilers.

Number	17	18	18 A
Capacity	1 pint	1 quart	2 quarts
Diameter ..... inches	3⅜	4⅛	5
Height ..... inches	5	6	8
Nozzle ..... inches	12	18	10 or 14
Price ..... per dozen	18.00	21.00	24.00

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Louisville Ky

OILERS.

TIN STOP OILER.

FIG. 2038.

FIG. 2039.

TIN AND BRASS PUMP PRESSURE OILER.

FIG. 2040.

STEEL PUMP OILER.

FIG. 2041.

Tin Oilers.

Number and Height ... .inches	15	17	21	27	32
Capacity	2 Qts. for Valve Oil	1 Pint	1 Quart	1 Quart	3 Pints
Price.....per dozen	24.00	24.00	24.00	24.00	24.00

Tin and Brass Pressure Oilers.

Number	0	1	2	3
Capacity	½ Pint	1 Pint	1½ Pint	1 Quart
Nozzle.....inches	6	8	12	20
Price, Tin .....per dozen	7.00	8.00	9.00	10.00
Price, Brass .....per dozen	12.00	14.00	16.00	18.00

Steel Oilers.

Number	1000	2000	3000	4000
Capacity	1 Pint	1½ Pint	1 Quart	2 Quarts
Diameter.....inches	3⅜	3¾	4⅛	5
Nozzle.....inches	9	12	15	18
Price..... .....per dozen	30.00	40.00	50.00	60.00

Laib & 761 Louisville Ky

ENGINEERS' AND STEAMBOAT OILER SETS.

FIG. 2042.

Engineers' Sets, with Round Tray.

Price, Number 30, Five Pieces, Copper Plated, Including Tray..per set	5.00
Price, Number 40, Six Pieces, Copper Plated, Including Tray..per set	7.00
Price, Number 50, Five Pieces, Nickel Plated, Including Tray..per set	7.00
Price, Number 60, Six Pieces, Nickel Plated, Including Tray..per set	10.00

Engineers' Sets, with Oval Tray.

Price, Number 35, Five Pieces, Copper Plated, Including Tray..per set	7.00
Price, Number 45, Six Pieces, Copper Plated, Including Tray..per set	10.00
Price, Number 55, Five Pieces, Nickel Plated, Including Tray..per set	8.00
Price, Number 65, Six Pieces, Nickel Plated, Including Tray..per set	11.00

Engineers' Sets.

Price, Number 30, Five Pieces of Brass, Including Tray.....per set	6.00
Price, Number 40, Six Pieces of Brass, Including Tray.....per set	9.00
Price, Number 50, Five Pieces of Brass, Nickel Plated, Inc. Tray per set	8.00
Price, Number 60, Six Pieces of Brass, Nickel Plated, Inc. Tray per set	11.00

Steamboat Sets, with Round Double Tray.

Price, Number 70, Five Pieces, Copper Plated, Including Tray..per set	6.00
Price, Number 80, Six Pieces, Copper Plated, Including Tray..per set	9.00
Price, Number 90, Five Pieces, Nickel Plated, Including Tray..per set	8.00
Price, Number 100, Six Pieces, Nickel Plated, Including Tray..per set	11.00

Steamboat Sets, with Oval Double Tray.

Price, Number 75, Five Pieces, Copper Plated, Including Tray..per set	9.00
Price, Number 85, Six Pieces, Copper Plated, Including Tray..per set	12.00
Price, Number 95, Five Pieces, Nickel Plated, Including Tray..per set	10.00
Price, Number 105, Six Pieces, Nickel Plated, Including Tray..per set	13.00

Steamboat Sets.

Price, Number 70, Five Pieces of Brass, Including Tray.....per set	7.00
Price, Number 80, Six Pieces of Brass, Including Tray.....per set	10.00
Price, Number 90, Five Pieces of Brass, Nickel Plated, Inc. Tray per set	9.00
Price, Number 100, Six Pieces of Brass, Nickel Plated, Inc. Tray per set	12.00

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762
Louisville Ky.

STEEL, COPPER AND BRASS NOZZLES FOR OILERS.

FIG. 2043.

Steel.

Length ..... inches	2½	3	5	Brazed 9	Brazed 12	Brazed 18
Price ..... per dozen	2.25	2.75	3 25	4.25	5.75	7.00

Brazed, Copper and Brass.

Length ..... inches	2½	3	5	9	12	18
Price ..... per dozen	3.00	3.50	4.25	5.00	6.25	7.50

PIT CAR OILERS.

FIG. 2044.

No. 1.

FIG. 2045.

No. 2.

FIG. 2046.

No. 3.

FIG. 2047.

No. 4.

Number	1	2	3	4
Capacity ..... gallons	½	¾	1	1½
Nozzle ..... inches	12	5	5	5
Discharge at each operation ..... ounces	⅛ to 1¼	⅛ to 1¼	⅛ to 1¼	¾ to 3½
Price ..... each	4.75	5.00	6.50	7.50

These Oilers are designed for rough usage. They will operate in any position and discharge a given quantity of oil at one movement of the operating mechanism. The range of the movement is adjustable. No oil can escape except by a movment of the discharge plunger.

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DITCH OR SEWER PLOW.

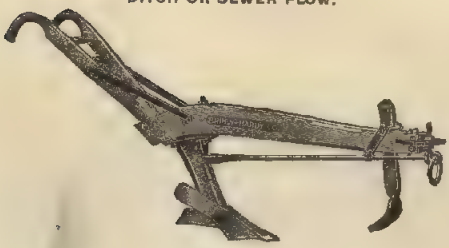

FIG. 3127.

ROAD PLOW.

FIG. 3128.
No. 80.

LOCOMOTIVE PLOW.

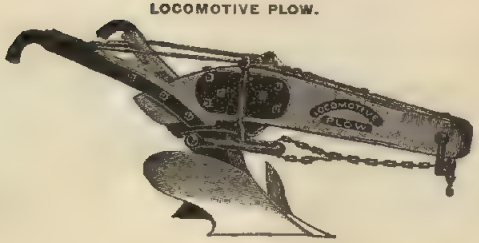

FIG. 3129.
No. 100.

Number.	Cut, Inches.	Weight, Pounds.	Price, Each.	Price Extra Mould and Point, Each.
Ditch or Sewer.	5	83	13.50 With Extra Point	2.00
80	7	238	40.00	8.00
100	14	450	80.00	18.00

SCRAPERS.

PRESSED STEEL SCRAPER.

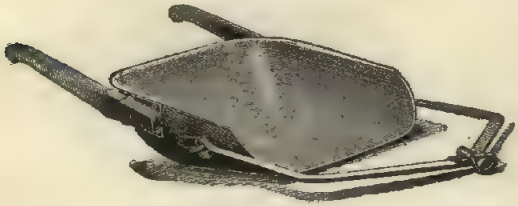

FIG. 3130.

Number	1	2	3
Capacity.....cubic feet	7	5	3½
Weight.....pounds	100	90	80
Price.....each	8.40	7.90	7.50

Broad Single Runner, extra 1.50: Without Runners, deduct .20.

DOAN DITCHING SCRAPER.

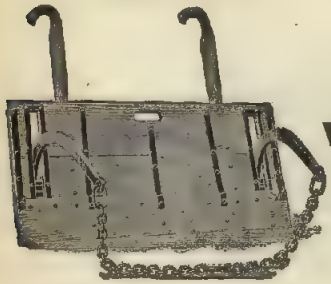

FIG. 3131.

TONGUE SCRAPER.

FIG. 3132.

Price, Doan Scraper, width 48 inches, weight 75 pounds.....each	7.50
Price, Tongue Scraper, width 48 inches, weight 135 pounds.....each	10.00

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IMPROVED PRESSED BOWL WHEEL SCRAPER.
WITH SAND PROOF HUB WHEELS.

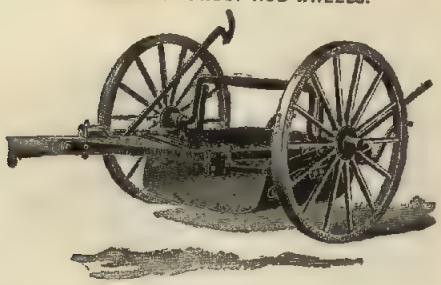


FIG. 3133.

Number 1: Capacity, 9 to 10 cubic feet; Wheels, 34 inches diameter; Tire, 3 inches; Size of Bowl: Length, 34 inches; Width, 34 inches; Depth, 11½ inches; Tracks, 4 feet 2 inches; Weight, 381 pounds....price each	30.50
Number 2: Capacity, 13 cubic feet; Wheels, 40 inches diameter; Tire, 3 x ¼ inches. Size of Bowl: Length, 36 inches; width 38 inches; Depth, 13½ inches, Inside measurement. Tracks 4 ft. 7 in. Weight 600 pounds, price each	40.50
Number 3: Capacity, 17 cubic feet; Wheels, 46 inches diameter; Tire, 3 x ¼ inches. Size of Bowl: Length 42 inches; Width 42 inches; Depth 16 inches, Inside Measurement. Tracks, 5 feet 2 inches; Weight 744 pounds..... price each	44.50

IMPROVED PRESSED BOWL WHEEL SCRAPER.
WITH SAND PROOF METAL WHEELS.

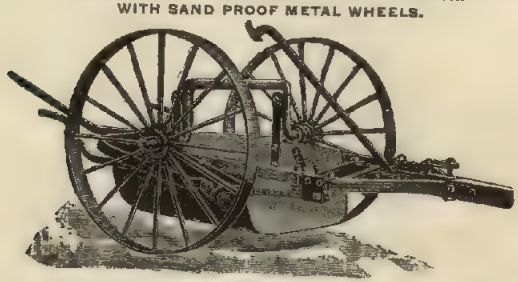


FIG. 3134.

Number 1:	Tire, 3 x ⅜ inches; Weight, 508 pounds.....price each	30.50
Number 2:	Tire, 4 x ½ inches; Weight, 693 pounds.....price each	40.50
Number 3:	Tire, 4 x ½ inches; Weight, 850 pounds.....price each	44.50

Other dimensions, etc., same as corresponding numbers above.

SCRAPERS.

IMPROVED SQUARE BOX WHEEL SCRAPERS. WITH IMPROVED SAND PROOF HUB WHEELS.

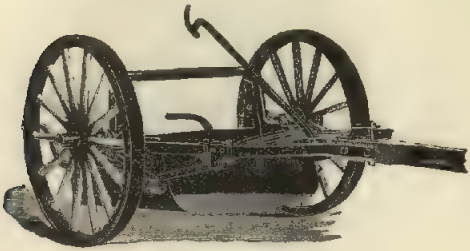


FIG. 3135.

Number 1: Capacity 9 to 10 cubic feet; Wheels 34 inches diameter; Tire, 3 inches. Size of Box: Length, 34 inches; width 34 inches; Depth, 11½ inches; Tracks, 4 feet 2 inches; Weight 390 pounds.....price each	30.00
Number 2: Capacity, 12 cubic feet; Wheels, 40 inches diameter; Tire, 3 x ¼ inches. Size of Box: Length; 36 inches; Width, 38 inches; Depth, 13½ inches, Inside Measurement. Tracks, 4 feet 7 inches; Weight, 605 pounds.....price, each	39.50
Number 3: Capacity, 16 cubic feet; Wheels, 46 inches diameter; Tire, 3 x ¼ inches. Size of Box: Length, 42 inches; Width, 42 inches; Depth, 16 inches, Inside Measurement. Tracks, 5 feet 2 inches; Weight, 755 pounds.....price, each	43.50

AUTOMATIC FRONT END GATE.

FIG. 3136.

Price, For No. 1 Scrapers.....each	3.00
Price, For Nos. 2 and 3 Scrapers.....each	4.50

Whiffletrees and Neck Yoke, extra, 5.00.

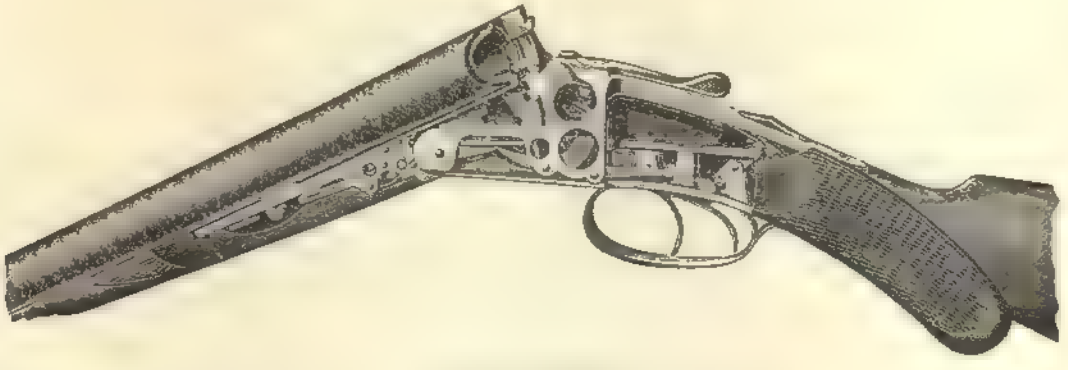
Double Barrel Shot Guns.

Remington.

Hammer.

Top Lever Action, Rebounding Bar Locks, Solid Strikers, Double Bolt, Low Circular Hammers, Extension Matted Rib, Case Hardened Locks and Mountings, Checkered Pistol Grip, Deeley and Edge Fore-End, Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored.

		Each
No. 1—12 Gauge, 30 In. Decarbonized Steel Barrels, Weight 7¾ to 8½ lbs.,		$30.00
No. 01—10 Gauge, 30 and 32 In. Decarbonized Steel Barrels, Weight 9 to 10 lbs.,		30.00
No. 001—16 Gauge, 28 and 30 In. Decarbonized Steel Barrels, Weight 6½ to 7½ lbs.,		30.00
No. 2—12 Gauge, 30 In. Twist Steel Barrels, Weight 7¾ to 8½ lbs.,		35.00
No. 02—10 Gauge, 30 and 32 In. Twist Steel Barrels, Weight 9 to 10 lbs.,		35.00
No. 3—12 Gauge, 30 In. Fine Damascus Steel Barrels, Weight 7¾ to 8½ lbs.,		40.00
No. 03—10 Gauge, 30 and 32 In. Fine Damascus Steel Barrels, Weight 9 to 10 lbs.,		40.00



Hammerless.

Top Lever Action, Rebounding Locks, Automatic Safety, Extension Rib with Bite, Case Hardened Locks and Mountings, Checkered Pistol Grip, Purdy Fore-End, Walnut Stock, Rubber Butt Plate, Both Barrrels Choke Bored.

		Each
No. K—12 Gauge, 30 In. Remington Blued Steel Barrels, Weight 7½ to 8¾ lbs.,		$35 00
No. 00K—16 Gauge, 28 In. Remington Blued Steel Barrels, Weight 6½ to 7 lbs.,		35 00
No. KD—12 Gauge, 30 In. Two Stripe Damascus Steel Barrels, Weight 7½ to 8½ lbs.,		40 00
No. 0KD—16 Gauge, 28 In. Two Stripe Damascus Steel Barrels, Weight 6½ to 7 lbs.,		40.00

Double Barrel Shot Guns.

Remington.

Top Lever Action, Rebounding Locks, Automatic Safety, Extension Matted Rib with Bite, Case Hardened Locks and Mountings, Checkered Pistol Grip, Purdy Fore-end, English Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored.

	Each
No. A—12 Gauge, 30 In. Two Stripe Damascus Steel Barrels, Weight 7½ to 8½ lbs.,	$45.00
No. OA—10 Gauge, 32 In. Two Stripe Damascus Steel Barrels, Weight 9 to 10 lbs.,	45.00
No. B—12 Gauge, 30 In. Three Stripe Damascus Steel Barrels, Line Engraving, Weight 7½ to 8½ lbs ,	60 00
No. OB—10 Gauge, 32 In. Three Stripe Damascus Steel Barrels, Line Engraving, Weight 9 to 10 lbs.,	60.00

Top Lever Action, Rebounding Locks, Automatic Safety, Extension Matted Rib with Bite, Case Hardened Locks and Mountings, Checkered Pistol Grip, Purdy Fore-end, English Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored.

	Each
No. AR—12 Gauge, 30 In. Remington Blued Steel Barrels, Weight 7½ to 8½ lbs.,	$45 00
No. OAR—10 Gauge, 32 In Remington Blued Steel Barrels, Weight 9 to 10 lbs.,	45.00
No. OOAR—16 Gauge, 28 In. Remington Blued Steel Barrels, Weight 6½ to 7 lbs.,	45.00

Double Barrel Shot Guns.

Remington.

Hammerless, Automatic Ejector.

Top Lever Action, Rebounding Locks, Automatic Safety, Extension Matted Rib with Bite, Case Hardened Locks and Mountings, Checkered Pistol Grip, Purdy Fore-end, English Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored.

	Each
No. KED—12 Gauge, 30 In. Remington Damascus Steel Barrels, Weight 7½ to 8½ lbs.,	$45 00
No. OOKED—16 Gauge, 28 In. Remington Damascus Steel Barrels, Weight 6½ to 7 lbs . . .	45.00

Hammerless, Automatic Ejector

Top Lever Action, Rebounding Locks, Automatic Safety Extension Matted Rib with Bite, Case Hardened Locks and Mountings, Checkered Pistol Grip and Purdy Fore-end, English Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored.

	Each
No. AE—12 Gauge, 30 In. Two Stripe Damascus Steel Barrels, Weight 7½ to 8½ lbs., . .	$50.00
No. OAE 10 Gauge, 32 In. Two Stripe Damascus Steel Barrels, Weight 9 to 10 lbs., . .	50.00
No. AER—12 Gauge, 30 In. Remington Blued Steel Barrels, Weight 7½ to 8½ lbs., . . .	50 00
No. OAER—10 Gauge, 32 In. Remington Blued Steel Barrels, Weight 9 to 10 lbs	50 00
No. OOAER—16 Gauge, 28 In. Remington Blued Steel Barrels, Weight 6½ to 7 lbs . . .	50 00

The Remington Steel Barrels are Specially Made for these Guns and Guaranteed for Use of Nitro Powder and are free from Imperfections

Double Barrel Shot Guns.

Baltimore.

Top Lever Action, Rebounding Locks, Automatic Safety Matted Extension Rib, Checkered Pistol Grip and Compensating Fore-end, Case Hardened Locks and Mountings, English Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored.

	Each
No. 130—12 Gauge, 30 In. Stubb Twist Steel Barrels, Weight 7 to 8¼ lbs.	$25 00
No. 132—16 Gauge, 28 In. Stubb Twist Steel Barrels, Weight 6¼ to 7 lbs.	25 00
No. 0130—12 Gauge, 30 In. Blued Nitro Steel Barrels, Weight 7 to 8¼ lbs.	25 00

Top Lever Action, Rebounding Locks, Automatic Safety, Matted Extension Rib, Treble Bolt, Checkered Pistol Grip with Rubber Cap Compensating Fore-end Case Hardened Locks and Mountings, English Walnut Stock, Rubber Butt Plate, Both Barrels Choke Bored

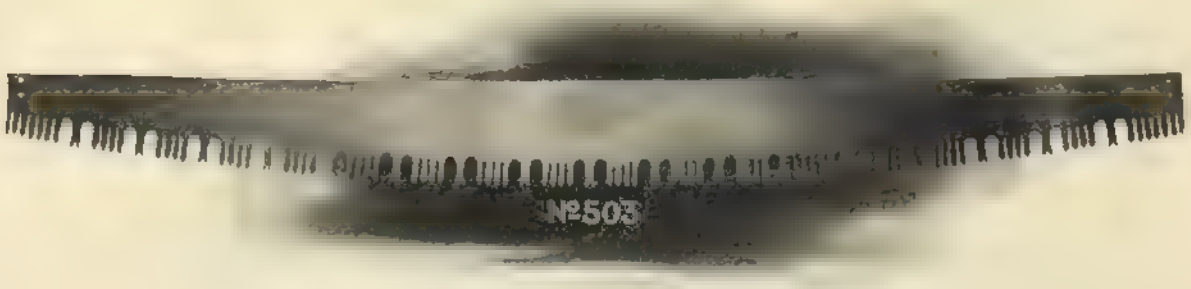
	Each
No. 135—12 Gauge, 30 In Three Stripe Damascus Steel Barrels, Weight 7 to 8¼ lbs.	$35 00
No. 137—16 Gauge, 28 In. Three Stripe Damascus Steel Barrels Weight 6¼ to 7 lbs.	35.00

Top Lever Action Rebounding Locks, Automatic Safety, Matted Extension Rib Treble Bolt, Checkered Straight or Pistol Grip, Compensating Fore-end, Case Hardened Locks and Mountings Fine English Walnut Stock, Both Barrels Choke Bored.

	Each
No. 140—12 Gauge, 30 In. Fine Damascus Steel Barrels, Weight 7 to 8 lbs.	$60 00

Cross Cut Saws

SIMONDS



No. 503—Simonds Royal Chinook, Bucking Pattern

13 Gauge on Teeth, 18 Gauge on Back, Crescent Ground

Length, Feet	6	6½	7	7½	8
Weight, each, Pounds	7¼	7½	8	9¼	9¾
Each	$6.00	6.50	7.00	7.50	8.00

No. 513—Simonds Royal Chinook, Falling Pattern

13 Gauge on Teeth, 17 Gauge on Back, Crescent Ground

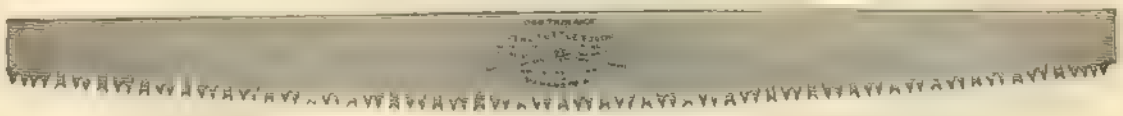
Length, Feet	7	7½	8	8½	9
Weight, each, Pounds	8¾	9¼	9¾	11½	12¾
Each	$7.00	7.50	8.00	10.20	12 15

No. 520—Simonds Chinook

13 Gauge on Teeth, 17 Gauge on Back, Crescent Ground

Length, Feet	6	6½	7	7½	8
Weight, each, Pounds	7¼	7½	8	9¼	9¾
Each	$4.80	5.20	5.60	6.00	6 40

TUTTLE TOOTH SAWS

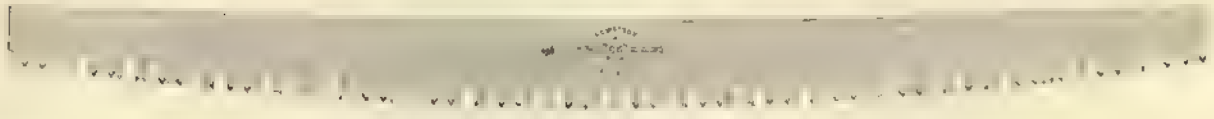


Thin Back, 14 Gauge on Tooth Edge, 18 Gauge on Back Edge

Length, Feet	5½	6	6½	7
Weight, each, Pounds	6½	8	9¼	9¾
Each	$3 08	3.36	3.64	3 92

Cross Cut Saws

ATKINS



Howatson Falling

Segment Ground, Extra Thin Back, 12 Gauge on Tooth Edge, 17 Gauge on Back Edge, Four Cutting Teeth to each Raker

Length, Feet	7	7½	8	8½	9	10
Weight, each, Pounds	8¼	9	9¾	10½	11½	14
Each	$7.55	8.10	8.65	11 00	11.65	12.95

Tyee

Segment Ground, Thin Back, 13 Gauge on Tooth Edge, 16 Gauge on Back Edge, Four Cutting Teeth to each Raker

Length, Feet	6	6½	7	7½	8
Weight, each, Pounds	7¼	8	10	11¾	12½
Each	$5 20	5 60	6.05	6.50	6 90

Tyee, Silver Steel

Segment Ground, Thin Back, 13 Gauge on Tooth Edge, 16 Gauge on Back Edge, Four Cutting Teeth to each Raker

Length, Feet	7	7½	8
Weight, each, Pounds	10	11¾	12½
Each	$7.55	8.10	8 65

Lance Tooth—Not Perforated

Thin Back, 13 Gauge on Tooth Edge, 16 Gauge on Back Edge, Four Cutting Teeth to each Raker

Length, Feet	5½	6	6½	7
Weight, each, Pounds	6	7¼	8½	10½
Each	$3.08	3 36	3.64	3 92

Victor, Lance Tooth, Perforated

Thin Back, 14 Gauge on Tooth Edge, 18 Gauge on Back Edge, Four Cutting Teeth to each Raker

Length, Feet	5½	6	6½	7
Weight, each, Pounds	6	7¼	8½	10½
Each	$3 30	3 60	3 90	4.20

Cross Cut Saws

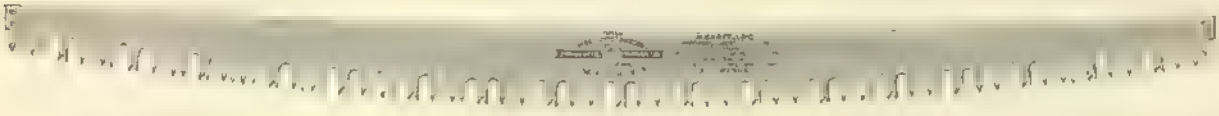
DISSTONS

Cougar

Built to meet the requirements of the Pacific Coast Farmer. [illegible] of the different [illegible] and tempering. Through a special process of tempering perfectly [illegible] cutting edge and a uniform thickness through the back, gives the maximum [illegible] sacrifice to its elasticity and toughness.

Thin Back, 13 Gauge on Tooth Edge, 17 Gauge on Back Edge, Four Cutting Teeth to each Raker, Toothed to Ends

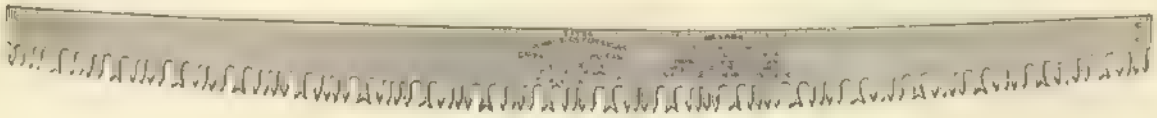
Length, Feet	6	6½	7	7½
Weight, each, Pounds	7¾	8¾	10¼	11
Each	$7 50	8 13	8 75	9 38



Cougar Falling

Thin Back, Four Cutting Teeth to each Raker, Toothed to Ends

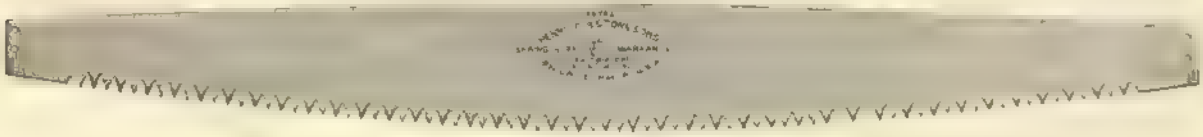
Length	7	7½	8	8½	9
Gauge	13×17	12×16	12×16	12×16	12×16
Weight, each, Pounds	8½	9¼	10	12	13¼
Each	$8 75	9 38	10 00	11 53	12 15



Nevada

Thin Back, 13 Gauge on Tooth Edge, 17 Gauge on Back Edge, Four Cutting Teeth to each Raker, Toothed to Ends

Length, Feet	5	5½	6	6½	7	7½	8
Weight, each, Pounds	6½	7	7¾	8¾	10¼	11	13
Each	$5.00	5 50	6 00	6 50	7.00	7.50	8 00

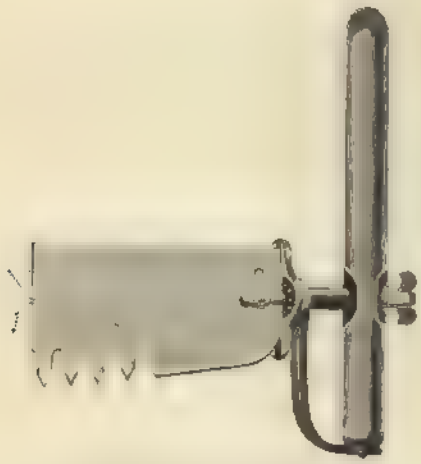


No. 1—Tenon Tooth

Four Guage Thinner on Back than on Tooth Edge

Length, Feet		
Weight, each, Pounds	4½	5¼
Each	4¼	5¾
	$2.84	3.15

Cross Cut Saw Handles

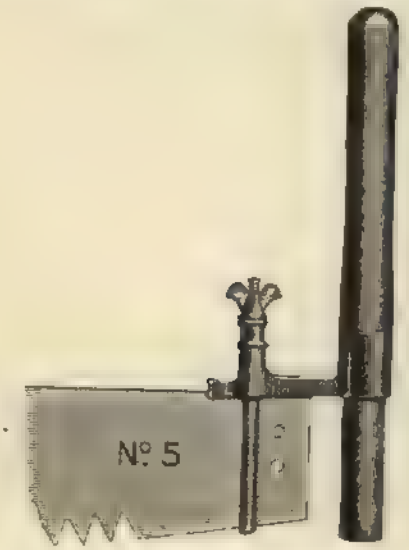


Disstons Universal

No.		Per Pair
114	Length 14 in., $1\frac{1}{4}$ in. Diameter, Double Grip, Malleable Iron Castings, Adjustable to Eight Positions, Painted Red	$1.30

Simonds Reversible

No.		Per Pair
31	Length, 14 in., $1\frac{1}{4}$ in. Diameter, Reversible Guard, Malleable Iron Castings	$1.25



No.		Per Pair
5	Malleable Iron Loop and Bracket, Stock 14 in. long	$0.60

No.		Per Pair
7	Malleable Iron Loop and Bracket, Stock 12 in. long, Reversible	$0.75

SUPPLEMENTARY HANDLES

No.		Per Doz.
30	Supplementary Saw Handles.	$2 00

ONE MAN SAW HANDLES

No.		Per Doz.
35	One Man Saw Handles, Beechwood.	$3 75

UNIVERSAL TURRET LATHES.

WITH GEARED FRICTION HEAD.

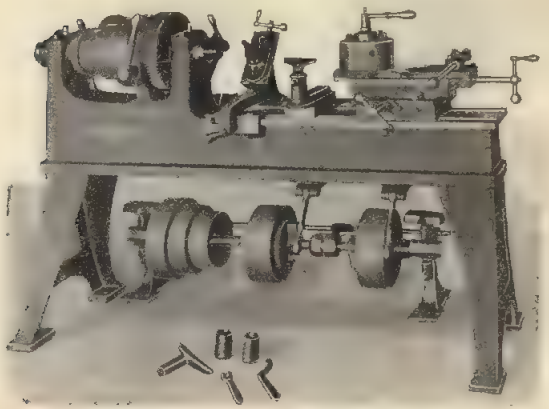


FIG 2448

	No. 1, with Plain Head or Plain Back Gears.	No. 2, with Geared Friction Head.	No. 3, with Geared Friction Head.
Swing	14 in.	16 in.	18 in.
Hole through spindle	1¼ "	1¼ "	1⅜ "
Automatic chuck capacity	⅞ "	⅞ "	1⅛ "
Thread on spindle	2"	2½	2¾ "
Pitch of thread on spindle	8	8	8
Holes in turret	1	1¼ "	1¼ "
Center of holes in turret to top of slide	7"	8 "	8⅛ "
Diameter of turret	6½ "	7¼ "	8 "
Length that can be turned	6 "	6 "	6½ "
Greatest distance end of spindle to turret	22	26 "	27
Swing over chasing tool slide	5¼ "	5¼ "	6¼ "
Largest diameter of cone	9⅝ "	10 "	11 "
Width of belt	2¼ "	2½ "	3 "
Pulleys on countershaft	10 "	10 "	12 "
Width of belt on countershaft	3 "	3 "	3½ "
A countershaft speed of	300 rev.	340 rev.	300 rev.
Gives spindle speeds of	880-480-290-170	680-425-270	555-305-245
Gives spindle speeds, with back gears, of	105-55-35-20	160-100-65	130-85-55
Floor space of machine	2' 10" x 6' 5"	2' 10" x 7'	3' x 7' 9"
Weight, net	1000 lbs.	1250 lbs.	1650 lbs.
Weight, crated	1200 "	1500 "	1900 "
Weight, boxed for export	1500 "	1750 "	2350 "
Cubic measurement, boxed	71 cu. ft.	82 cu. ft.	93 cu. ft.

TURRET LATHES.

WITH GEARED FRICTION HEAD AND AUTOMATIC CHUCK.

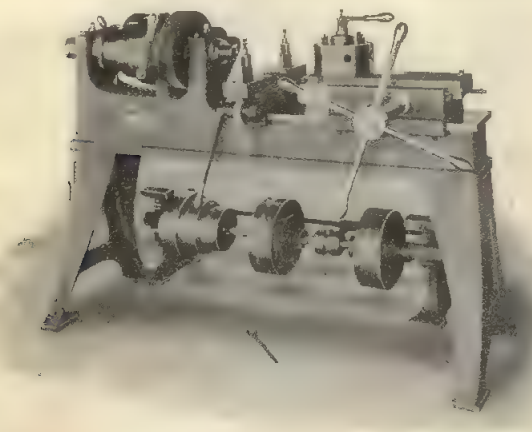


FIG. 2444.

	14-in. Swing.	16-in. Swing.	18-in. Swing.
Capacity through automatic chuck	⅞ in.	1⅛ in.	1⅜ in.
Hole in automatic chuck plunger	1⅛ "	1⅜ "	1⅝ "
Hole in spindle	¾ "	⅞ "	1⅛ "
Thread on spindle	2⅛ "	2⅝ "	3 "
Pitch of thread on spindle	8	8	6
Holes in turret	1¼ "	1⅜ "	1½ "
Center of holes in turret to top of slide	2⅛ "	3 "	3½ "
Diameter of turret	8 "	8½ "	10 "
Length that can be turned	8 "	10 "	12 "
Greatest distance end of spindle to turret	11	90	24 "
Largest diameter of cone	10	11 "	13 "
Width of belt	2¼ "	3 "	3½ "
Pulleys on countershaft	2 "	12 "	14 "
Width of belt on countershaft	3½ "	3½ "	4
A countershaft speed of	240 rev.	300 rev.	240 rev.
Gives spindle speeds of	680 425-270	550 360 240	465-288 194
Gives spindle speeds, with back gears, of	170-106-65	135 90 60	90-57-37
Floor space of machine	2′ 8″ x 5′ 6″	2′ 4″ x 6′	2′ 6″ x 7′ 6″
Weight, net	1250 lbs.	1500 lbs.	2100 lbs.
Weight, crated	1450 "	1750 "	2350 "
Weight, boxed for export	1750 "	2100 "	3000 "
Cubic measurement, boxed	69 cu. ft.	86 cu. ft.	105 cu. ft.

TURRET SCREW MACHINES.

WITH GEARED-FRICTION HEAD, AUTOMATIC CHUCK AND WIRE FEED.

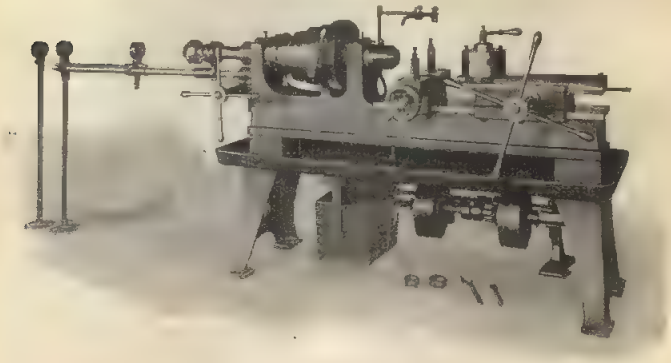


FIG 2445.

	No. 4	No. 6	No. 8.
Capacity through automatic chuck	1⅝ in	2⅛ in	3 in
Hole in automatic chuck plunger	1⅛ "	1⅝ "	2⅛ "
Hole in spindle	1 1/4 "	1 5/8 "	2 1/8 "
Thread on spindle	2 "	1 "	3 "
Pitch of thread on spindle	6	6	4
Holes in turret	1⅝	1¾	2½ "
Center of hole in turret to top of slide	9 1/2 "	3 "	3¾ "
Diameter of turret	8 "	8½ "	12½ "
Length that can be turned	8 "	11 "	14 "
Greatest distance end of spindle to turret	17 "	24 "	28 "
Swing over bed	14 "	16 "	20 "
Largest diameter of chuck	11 "	13 "	18 "
Width of belt	3 "	3 "	4½ "
Pulleys on countershaft	12 "	13 "	16 "
Width of belt on countershaft	3½ "	4 "	5 "
A countershaft speed of	200 rev.	180 rev.	180 rev.
Gives spindle speeds of	370 241 64	260 180 125	210-180-125
Gives spindle speeds with back gears of	86 56 38	50-35-24	40-30-22
Floor space of machine	2' 2" x 6' 2"	2' 6" x 7' 6"	3' 8" x 8'
Extension of wire feed rod	3' 6"	3' 6"	4' 3"
Weight, net	1800 lbs.	2250 lbs.	4500 lbs
Weight, crated	2050 "	2600 "	4900 "
Weight, boxed for export	2400 "	3000 "	5500 "
Cubic measurement, boxed	106 cu. ft.	123 cu. ft.	148 cu. ft.

TURRET SCREW MACHINES.

With Plain Head, Automatic Chuck and Wire Feed.

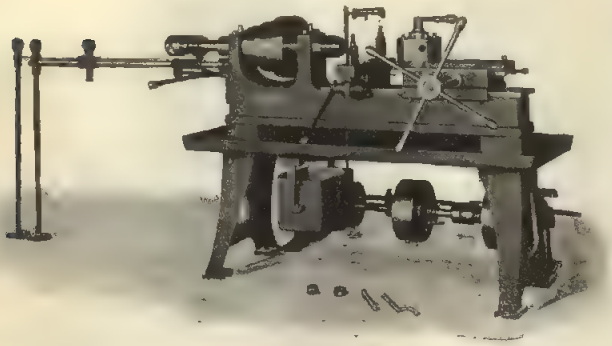


FIG. 2448.

	No. 1	No. 2	No. 4
Capacity through automatic chuck	5/8 in.	1 in.	1 3/8 in.
Hole in automatic chuck plunger	9/16 "	1 1/16 "	1 7/16 "
Hole in spindle	9/16 "	1 1/4 "	1 1/4 "
Thread on spindle	1 1/2 "	2 "	3 "
Pitch of thread on spindle	8	8	6
Holes in turret	3/4 "	1 "	1 1/2 "
Center of holes in turret to top of slide	1 3/8 "	1 7/8 "	2 1/2 "
Diameter of turret	5 "	6 1/2 "	8 "
Length that can be turned	3 5/8 "	6 "	8 "
Greatest distance end of spindle to turret	7 "	14 "	18 "
Swing over bed	10 "	12 "	14 "
Largest diameter of cone	8 "	9 "	12 "
Width of belt	2 1/4 "	2 1/2 "	3 "
Pulleys on countershaft	8 "	10 "	12 "
Width of belt on countershaft	2 1/2 "	3 "	3 1/2 "
*A countershaft speed of	200 rev.	200 rev.	120 rev.
Gives spindle speeds of	600 330-200	480-286-178	185 108 70
Floor space of machine	2' 2" x 3' 10"	2' 1" x 5'	2' 6" x 6'
Extension of wire feed rod	3'	3' 5"	3' 9"
Weight, net	650 lbs.	1050 lbs.	1550 lbs.
Weight, crated	800 "	1250 "	1800 "
Weight, boxed for export	1000 "	1550 "	2150 "
Cubic measurement, boxed	47 cu. ft.	71 cu. ft.	104 cu. ft.

*Countershaft speed as given is for steel or iron. This speed should be doubled when machine is used for brass work.

Razors.

Wostenholm.

Per Dozen.

No. 0815—½ In. Blade, Clear Horn Handle, ... $9.00

Per Dozen

No. 02369—⅝ In. Blade, Black Rubber Handle, ... $9.00

Per Dozen

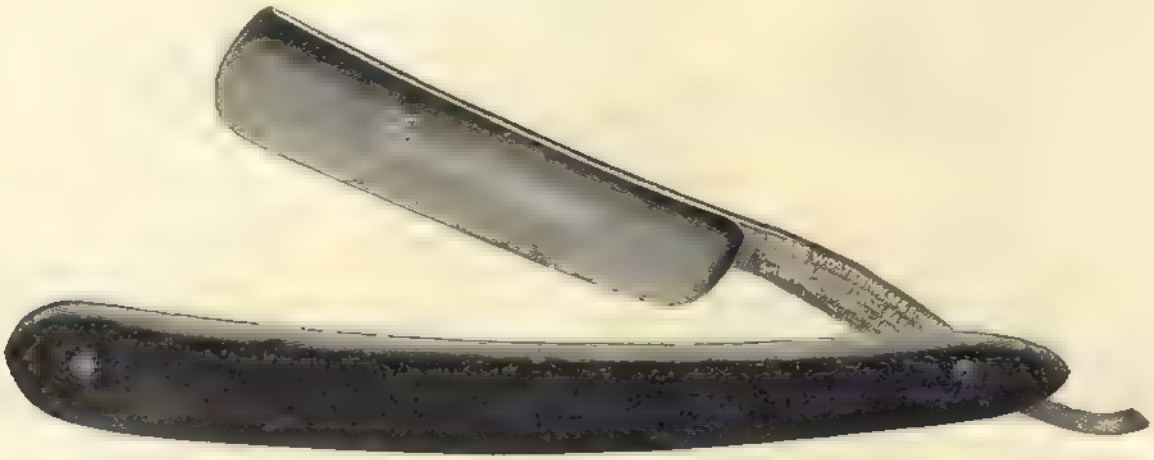
No. 0836—⅝ In. Blade, Black Rubber Handle, Blade Etched in Gold $12.00

Half Dozen in a Box.

BAKER & HAMILTON

Razors.

Wostenholm.



No. 01438—5/8 In. Blade, Black Rubber Handle . . . . . Per Dozen $12.00

No. 1724—7/8 In. Single Heel Blade, Black Rubber Handle, ... Per Dozen $13.00
No. 01461—7/8 In. Double Heel Blade, Black Rubber Handle, ... 24.00

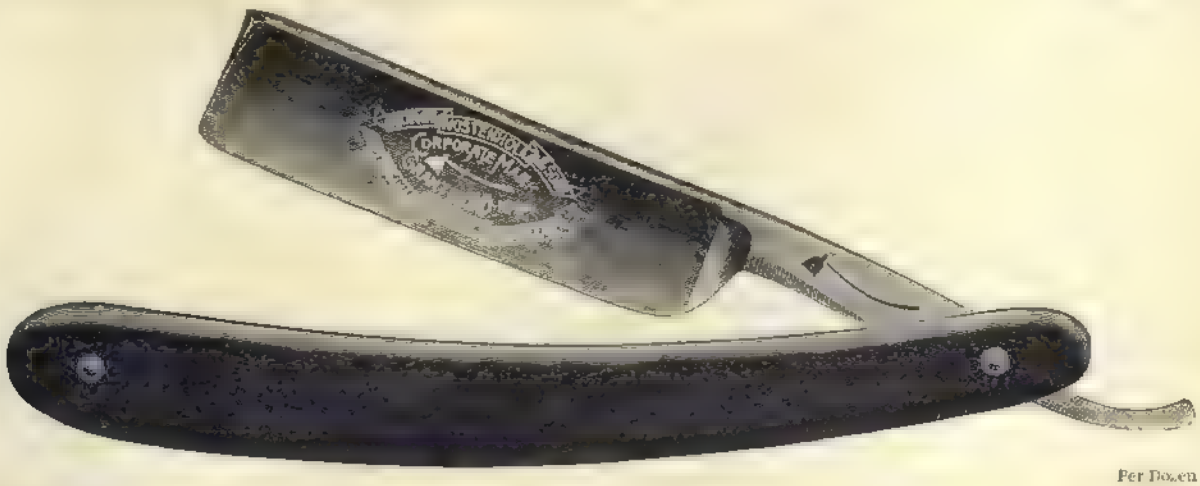
No. 03548—5/8 In. Blade, Black Rubber Handle, ... Per Dozen $16.00
Half Dozen in a Box.

Razors.

Wostenholm.

No. 02363—⅝ In. Blade, Black Rubber Handle, ... Per Dozen $18.00

No. 03608—⅝ In. Blade, White Bone Handle, Etched in Gold, ... Per Dozen $20.00

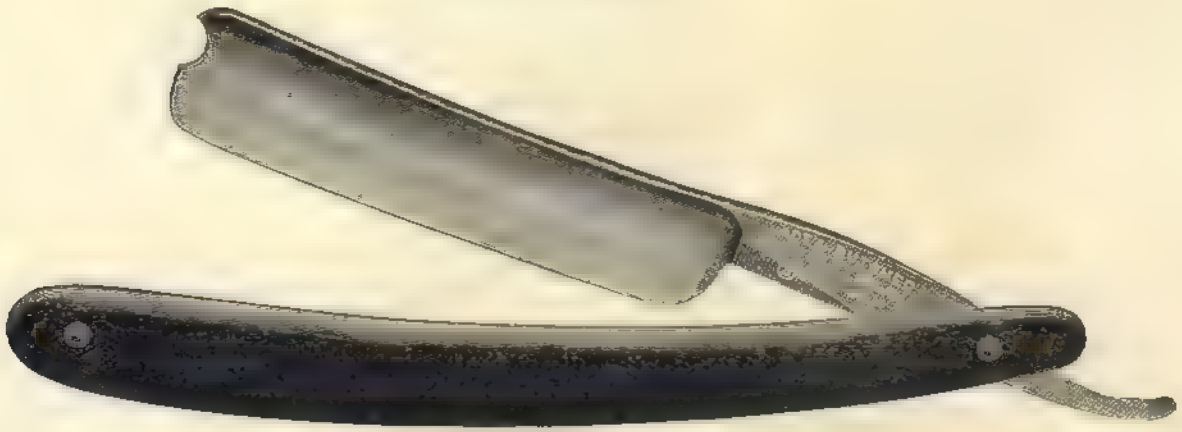


No. 03492—⅝ In. Blade, Black Rubber Handle, Etched in Gold, . Per Dozen $22.00

Half Dozen in a Box

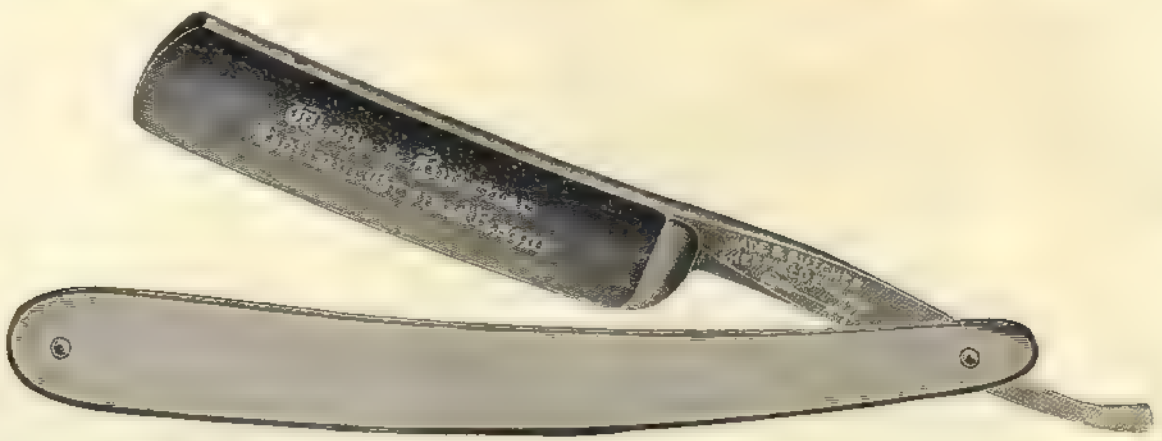
Razors.

Wade & Butcher's.



No. 1372—⅝ In. Blade, Black Rubber Handle, ... Per Dozen $12.00

No. 1398—⅝ In Blade, Black Rubber Handle, ... Per Dozen $16.00



	Per Dozen
No. 1452—⅝ In. Blade, White Bone Handle,	$20.00
No. 1452—¾ In. Blade, White Bone Handle,	22.00
No. 1252—⅝ In. Blade, Ivory Handle,	36.00
No. 1252—¾ In. Blade, Ivory Handle,	36.00

Half Dozen in a Box.

the crank shaft disk The clutch is of the self-contained cone type, leather faced, the leather fastened by screws with counter-sunk heads. The body of the clutch is a light bronze casting with spokes, the rear end forming a yoke fitting into a cast steel piece pinned and keyed to the transmission shaft, making a flexible connection. This clutch being forced by a spring engages the surface of a cone bolted to the back of the flywheel and gives no end thrust on the engine bearings

The connecting rod is a bronze casting of I section split at the lower end with the usual cap fastening. Bass wood strips are also used at the crank pin end. The wrist pin is a 1 inch diameter hollow steel hardened and ground, held from side dip by set screws with long cotter pins through their head, which by bearing against the piston walls prevent the set screws from loosening.

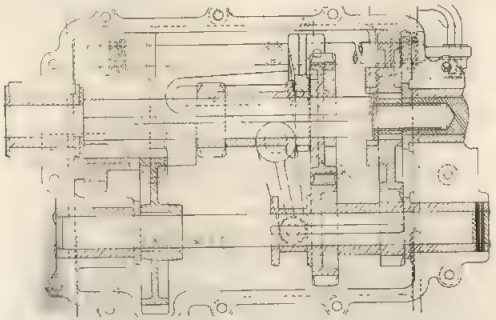
a spring. The gears are of the best nickel steel, beveled almost to a sharp edge which facilitates shifting and reduces the noise.

IGNITION.

Jump spark ignition is used, there being, of course, only two plugs. Current is furnished from a dry battery under front seat. A single coil and distributor are employed. A choice of coils either vibrating or non-vibrating is given the purchaser. The combined timer and distributor is placed on the end of a vertical shaft bevel gear driven from the front of the cam shaft. The small bevels are encased as are all the other gears used.

CONTROL

The spark and throttle levers are situated on the steering post under the wheel, the lower lever being the throttle and the upper one the spark. Two push pedals are provided, one for the clutch, the other operating on a double acting strap brake or contract-



Sectional drawing of the E. H. V. Co.'s Compound 3-speed forward and reverse transmission.

OILING

Splash lubrication is employed. A triple sight feed, belt driven lubricator is placed on the dash. One feed leads into the side of the low pressure cylinder in whose piston oil rings are cut. The other two lead to the two compartments of the divided crank case. The motor is fitted with the well-known Schebler Automatic Carburetor.

COOLING

A tubular cooler of large surface, guaranteed not to leak, acts also as tank from which the gear pump direct connected to the end of the cam shaft, draws its supply, forces it into side of valve chambers into engine jackets and out at the head through brass pipes back into the top of the radiator. A draw off cock is placed in the brass pipe at the top. An aluminum bladed, belt driven, ball-bearing fan draws air through the cooler.

TRANSMISSION.

The transmission is a sliding gear three speeds forward and reverse. On the high gear the drive is direct, the lay shaft standing still as the gear which drives it is thrown out by a lever and thrown into action again by

ing steel band on a bronze drum at the rear of the transmission on the driving shaft. The brake may be applied with the clutch in for purposes of steadying down the car and, if necessary, at the same time using the engine as a brake. The lever shown on the outside is the emergency ratchet brake and operates by tension rods the internal expanding band brake on the hubs of the rear wheels. This brake releases the clutch. The steering wheel acts on a worm and sector through rods fitted with adjustable ball and socket joints to the steering knuckles. The knuckle and yoke are drop forgings pinned and brazed.

The E. H. V. Co. deserve much credit for the able manner in which they have brought out and developed this new type of gasoline motor. They proved in the late New York Motor Club National Economy trials conclusively its economy and consistent running by outclassing all touring cars in the contest of seven hundred miles, in which only 43½ gallons of gasoline were consumed

Many experiments have been and are now being made at their extensive plant for the

further development of this type of motor. A new and complete testing plant has lately been installed. This consists of the stand, a specially designed clutch on the end of a dynamo shaft, a bank of lights, volt meter, ammeter and an electrical revolution counter. The lights are used simply as a means of absorbing the current generated by the dynamo, and no attention is paid to the number of lights which could be lit, the volt meter and ammeter giving a much more accurate indication of the current. From these readings by interpolation from a carefully prepared and corrected power curve for the dynamo a very accurate determination of the power generated is possible. A series of tests have also been carried out upon the engine by the use of the indicator for the purpose of determining the exact effect of cams of different profile and setting, upon the power and the distribution of the work between the high and low cylinders. In these experiments the engine speeds were kept below 500 revolutions per minute, for it is well known that this instrument does not give reliable information at the high speeds at which gasoline engines develop maximum power, but used in the manner and for the purpose described it has developed much new and useful data in connection with compound gasoline engines.

"Thompson" Steam Wagonette

The "Thompson" 8-10 passenger steam wagonette is manufactured by the Thompson Auto. Co., Olneyville Square, Providence, R. I.

The wagonette is equipped with an 8-10 H. P. "Fitzhenry" encased engine, 10 to 12 H. P. Tonkin "Dry Plate" boiler; steam "Victor" water and air pumps; power and hand fuel pumps; copper fuel tank, capacity 15 gallons; fuel pressure tank, supplied by power and hand pumps, having only one quart of gasoline under pressure; automatic fuel and steam pressure regulators; galvanized iron water tanks placed under the passenger (side) seats; nickled plated 3 in. face steam and fuel pressure gauge; feed water heater and muffler; wheel steering by triple thread screw and nut; foot brake double acting operating on the brake drums on each driving wheel; tubular steel running gear with heavy hickory wood reaches; extra heavy Brown-Lipe differential gears. Baldwin roller detachable chains; artillery wood wheels 30 in. and 32 in. in diameter, fitted with American roller bearings, and 2½ in. solid rubber "Diamond" tires patent leather dash board; canopy top (wood frame) with curtains, storm boot for operator; cushions, brass foot rail and trimmings; French brass horn; brass side lamps; Rushmore search light and generator; water gauge lamp; extra steam water pump and a full set of tools and supplies.

The body is painted Royal Blue; running gear, "Road Cart Red," canopy top is finished in natural wood. The car weighs with water and gasoline 3200 pounds. It will speed with present sprockets on engine (which are for hill climbing) from 12 to 20 miles an hour, and will climb any hill in reason with full load. All valves are controlled from the operator's seat.

The "Thompson" 8-10 Passenger Steam Wagonette.

The total length of the machine is about 10½ ft.; height, 8 ft.; tread, 5 ft.; wheel base, 8½ ft. Ogee panels on body are made of Russian iron so that it will not warp or crack. With the exception of one or two pieces on the machine, the parts are made of hand forged Norway iron or steel. Price is $2200, f. o. b. Providence.

there was very little variation in the time, the different miles varying from 1 minute 7 3-5 seconds to 1 minute 6 1-5 seconds. After this point in the race, the car which was driven by Clemens showed a little better speed and made miles from 1 minute 5 seconds to 1 minute 5 4-5 seconds, while a little later it dropped to 1 minute 4 1-5 second, then to 1 minute 3 seconds, and finally to 1 minute 2 3-5 seconds on the eighty-eighth mile.

On the ninty-fourth mile, a tire on Mr. Clemens' car exploded; at that time he was 2 minutes 19 3-5 seconds inside of his former record made in the 100-mile race of November 4th. He lost 7 minutes and 18 seconds in having his tires replaced and succeeded in breaking the 150-mile record, in spite of this loss of time, by 13 minutes 5 1-5 seconds.

The second car, driven by Merz, fell slightly behind and on the 151st mile Clemens' car struck the fence on entering the home stretch owing to the fact that it was growing dark and the track was not yet illuminated.

Mr. Clemens hit the fence four or five times before his machine finally swerved and went through, breaking the front wheels and bending the frame slightly and ruining the radiator but doing no further damage.

After that the two men alternated at intervals of 50 or 100 miles.

As the race continued, the surface of the track was steadily ground down near the pole which resulted in the exposure of very sharp gravel underneath, resulting of course in frequent tire changes.

During the whole night, the car kept up a uniform performance and notwithstanding its many stops for tire replacements, succeeded in breaking the various records mentioned above

The average speed maintained during the 24 hours including stops was 45 7 12 miles per hour, and the time made at 650 miles was 14 hours 8 minutes and 51 2-5 seconds;

At	700 miles,	15 hours	19 minutes	29 3-5 seconds.
At	750 miles,	16 hours	20 minutes	55 3-5 seconds.
At	800 miles,	17 hours	17 minutes	33 1-5 seconds.
At	850 miles,	18 hours	23 minutes	14 2-5 seconds.
At	900 miles,	19 hours	44 minutes	18 1-5 seconds.
At	950 miles,	20 hours	54 minutes	0 3-5 seconds.
At	1000 miles,	21 hours	58 minutes	4-5 seconds.
At	1050 miles,	23 hours	7 minutes	12 seconds.

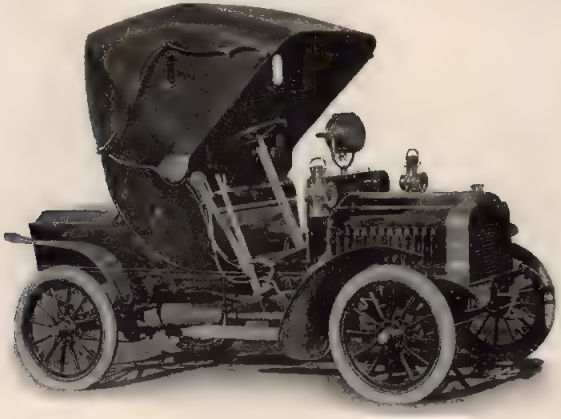
Total time lost during the 24 hours for tire repairs, refilling of gasoline, oil and water tanks, was 2 hours 54 minutes and 12 seconds, making the actual running time 21 hours 5 minutes and 48 seconds, showing an average speed while actually running of 51 9-10 miles per hour.

1906 Compound Cars

E. S. FOLIAMBE, B. S.

The E. H. V. Company, Middletown, Conn., originators of the Compound, offer for 1906, besides their light touring car, a doctor's runabout of original design.

The specifications and dimensions of the light touring car, Model 4, which we have perviously illustrated, are motor three-cylinder vertical, two high pressure 4 x 4 inch, and one low pressure 7 inch bore by 4 inch stroke, rated 12 and 15 H. P. Sliding gear, three speeds forward and one reverse, jump spark ignition by dry battery, shaft to bevel gear drive, wheel base 82 inch, tread 56½ inch, wheels 28 x 3½ inch tires, side entrance ton-

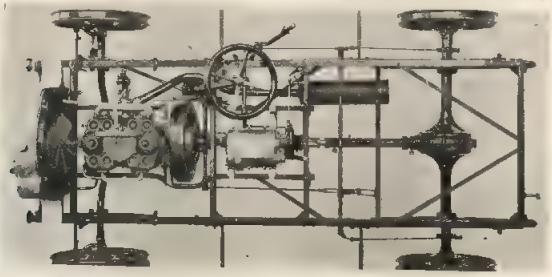


Compound Doctor's Stanhope mounted on regular 12-15 H. P. chassis. Price, $1400

neau, four passengers, weight 1600; price, including lamps, horn, tools, etc., $1400.

The frame is of pressed steel stiffened by cold riveted gusset plates of good size. The engine sub-frame is also pressed steel of channel section, and forms the transverse stiffening members of the frame.

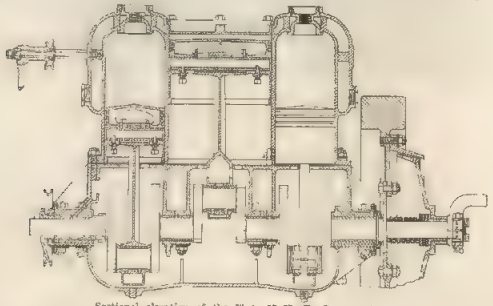
The springs are semi-elliptic, 39 inches long, both front and rear. Either plain or ball-bearings are furnished for wheels. The front axle is heavy seamless steel tubing, as is also the casing of rear axles surrounding the line shaft. The differential is of the spur gear type, the gears having exceedingly wide faces and ample bearing surface. The bevel gear reduction is 3.04 to 1 or one turn of the wheels to 3.04 turns of the engine shaft on the high gear.



Compound 12-h. P. chassis, plan view pressed steel frame, tubular encased rear axle, tubular front axle with forged knuckles and sliding gear transmission.

The body is aluminum throughout, beautifully finished and fitted with hair upholstery. The tonneau is comfortable and has a roomy side entrance. The material and workmanship are much better than is usual with low-priced cars. Every nut, bolt, screw, and even washers, used in the construction are heavily copper-plated to prevent rust. All nuts, bolts and adjustments are locked.

The specifications of the doctor's car as regards the engine and chassis, are identical with Model 4. The accompanying illustration gives a good idea of its general appearance. Much care has been exercised in keeping the body free from mechanism, and this gives an exceedingly large carrying space. The upholstering is more on the order of a carriage than an automobile. Even convenient side pockets suitable for papers and small articles, are provided in the upholstery of the arms. A heavy leather folding carriage top upon a two-cylinder engine, since only two is fitted with hanging loop for arm support. The top, in connection with a rubber boot, makes an excellent storm equipment. This car, fitted as it is with a 15 H. P. three-cylinder balanced engine, practically noiseless, has only the trouble and worry attendant



Sectional elevation of the 12 to 15 H. P. Compound Engine

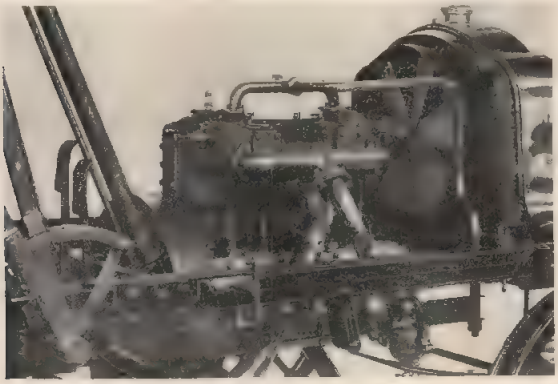
cylinders fire and have plugs, consequently it ought to be a very popular one with the profession.

A model 5 of 98¼ inch wheel base, Victoria body of graceful design and practically the same chassis as the other cars, is also to be added to the line of this company's cars. Any of these models may be had with side chain drive if desired.

THE COMPOUND MOTOR.

Only one size engine is built for all three models. This is a compact three cylinder engine, all cast in one piece, having two high pressure cylinders in which explosions take place, and one low pressure cylinder of larger diameter in which no explosions occur. The low pressure cylinder is placed between the two high pressure cylinders, which are each four inch bore, while the low pressure is seven inch bore, the stroke of all three cylinders being four inches.

For the benefit of those who are not familiar with the Compound engine, the action is briefly as follows: One high pressure piston is on a power stroke, while the other is on an intake stroke. Each exhausts in turn at the completion of its power stroke into the low pressure cylinder. Thus it will be seen that every down stroke is a power stroke, but without explosion, so the engine has an impulse every half turn just as a four-cylinder, but with only the complications and ignition troubles attendant on two cylinders. This action is possible, owing to the fact that the cranks are set at 180 degrees apart. The two high pressure pistons act together and in the opposite direction to the low. The low pressure piston, being heavier than the combined weights of the two high, is accurately balanced by extending the high pressure crank webs on the opposite side of the shaft, to form counter weights. The valve arrangement is as follows: On the right side of the motor are four valves mechanically operated, two being inlets to the high pressure cylinders, and two, their exhausts. On the left side of the engine are four more mechanically operated valves, two inlets into the low and its two final exhausts. All these valves are interchangeable, and are made with cast iron heads riveted on to steel stems. The lower ends of the stems are provided with hardened pieces to resist the wear of the push rods. The push rods are adjustable in length, and carry a hardened ball at the lower end for contact with the cams, instead of the usual roller. The valve spring coils are ⅞ inch diameter and of light weight wire, held by a washer resting on a split washer fitting into a shoulder. This spring can be removed by lifting up and removing the split washer. Inlet pipes are 1½ inch diameter outside brass castings, held in position by slotted hexagonal headed cap screws and made tight by wire asbestos gaskets. The exhaust pipes, contrary to the usual custom, are also brass. This is possible owing to the fact that the exhaust of this engine is practically cold, all the heat left in the gases being used for work in the low pressure cylinder. The cam shaft is ⅝ inch diameter, cams keyed and pinned to the shaft. The cams are steel case hardened and ground. The crank shaft is hand forged with a disk formed at one end for bolting on the flywheel. The crank shaft is supported on four bearings, the middle bearings being held by yokes, double lock nuts and cotter pins. The bearings are all of bronze with longitudinal strips of bass wood ⅛ inch wide set in. This wood has replaced the strips of habbitt previously used.



Intake side of 12-15 H. P. Compound Motor, showing arrangement of carburetor and mounting in sub-frame.

The two cam shafts each carrying four hardened steel cams and supported in four bronze bushed bearings are driven from a small gear on the engine shaft through an idler on each side to the gears on the cam shaft. All these gears are inside of the crank case, the ends of which are so arranged that the cam shaft and gears can be easily withdrawn. The flywheel is cast iron of about one hundred pounds weight with a webb and no spokes. This webb is held by six bolts to

The 1906 Grout Car

E. S. FOLJAMBE, B.S.

The Grout Brothers Automobile Co., Orange, Mass., well known as builders of the Grout Steamers, recognizing the demand for medium priced, well built gasoline touring cars, have for more than two years been constructing and testing many gasoline models. This has finally resulted in bringing out their 1906 gasoline touring car. The first machine to be completed was thoroughly tested over eight thousand miles of all kinds of road, not selected for its smoothness. This work has been carried on under the supervision of Mr. H. L. Radford, of Boston, Mass., who has had more than twelve years' experience in building gasoline motors. It is noteworthy that after this severe test practically no changes were made either in the design or construction, the car fully coming up to the expectation of the builders. In fact, quoting the words of Mr. Grout, after a most successful trip over hills and sand, "I said I never should build a gasoline machine until I made one that would mind the throttle like a steamer, and I have kept my word."

The Grout 1906 gasoline touring car. Note the wide side entrance, broad, high-backed seats, the location of the side levers in such a position as not to obstruct the entrance.

The specifications of the car are: Engine, four 4½x5 cylinders, 28 to 32 H. P., sliding gear transmission, side chain drive, weight 1800 lbs. Price, $1800.

The car follows approved lines—4-cylinder engine, vertical under the hood at the front, cellular type of cooler and tank combined, broad, high back, luxuriously upholstered seats and a liberal width side entrance tonneau, capable of seating three. The front seat is not divided and will also accommodate three, although intended ordinarily for two passengers. A neatly rubber covered, and brass edged running board extends from the front to the rear mud guard and supports on each side of the car an enameled box, the left carrying the batteries and the right hand box carrying the tools. The side chain drive has been adopted, the front sprocket being covered and forming a second step for the tonneau. The dash is unusually clear, supporting only a switch and single coil. The three speed sliding gear transmission is controlled by the usual side gear-shifting lever. The other side lever operates emergency hub brakes. A pedal controls the countershaft brake and another one operates the rather large cone clutch.

The car has the following dimensions and specifications: Wheel base, standard ninety-six inches, gage fifty-six inches, wheels thirty inches, tires three and one-half inch diameter. Motor: Four cylinder, vertical, four and one quarter by five inches, twenty-eight-thirty h. p., sliding gear transmission, three speeds forward and one reverse, side chain drive to solid rear axle. Side entrance tonneau, five or six passengers, weight eighteen hundred pounds, price $1800 00.

THE MOTOR.

The four cylinders, four and one-quarter by five inches, are rated at twenty-eight to thirty H. P., but often show upon the brake over 32 H. P. The cylinders are cast individually, making replacement in case of a freeze up, inexpensive. The base is a fine specimen of aluminum casting, fitted with a four inch by fourteen inch, instantly removable hand hole cover at the right side of motor. This cover carries the breathing pipes to the crank case. The entire bottom of the crank case can be quickly removed for the withdrawal of a connecting rod, without disturbing in any way the five bearings of the engine, or the upper half of the crank case which carries the arms by means of which the engine is supported on its frame. The valves are all located on one side which narrows down the transverse width of the combustion chamber, which is, however, anything but spherical. It has been proven by continued practice that the theoretically correct spherical combustion chamber has so many disadvantages in practice as to place it long since on the list of discarded experiments. The valves are all interchangeable and mechani-

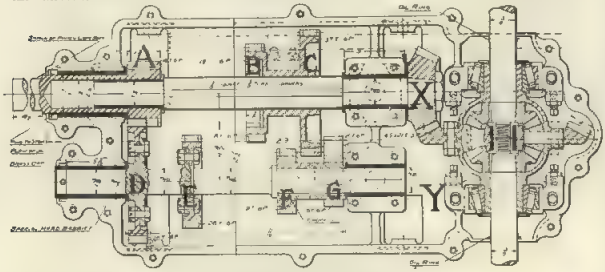
grooved sleeve can be moved up and down. The pin working in the groove forces the central core to rotate, carrying with it the contact points, in this way giving an early or late ignition as desired. This method which allows all the wiring to be fastened to a stationary part instead of a movable one, eliminates in a great measure the troubles due to broken connections.

CONTROL.

In the plan view of the chassis will be noticed the spark and throttle control on the top of the steering wheel, but contrary to ordinary practice the notched arc or sector is not fast to the wheel, but is stationary, so that in turning curves, instead of the sector turning around with the wheel and changing its position relative to the driver, it remains always in exactly the same position regardless of the motion of the steering wheel. This is a decided advantage in negotiating curves, as it is just at such times that one is likely to use the spark and throttle. The button working on the inside of the sector controls the spark, while the outside one operates the throttle, which is connected with the carburetor by means of a small chain running through a stationary tube. The carburetor is of the float feed automatic auxiliary air inlet type and is claimed to give practically a perfect mixture at all engine speeds. Of the two foot pedals, one operates the clutch alone, the other controls the band brake on the countershaft and also throws out the clutch. A side ratchet or emergency brake operates on the rear wheels and also throws out the clutch. This rear wheel contracting band is of steel, its upper half is held from contact with a twelve inch diameter, two inch face bronze drum, by a short stiff spring supported from the rear axle. This spring will give sufficiently to allow the brake band to engage the drum, but when the band is released, it prevents the dragging action so common in external band brakes. The brakes are set to give equal gripping on each rear wheel with the axle jacked from the floor, and are powerful enough to stop and hold the car on any hill

TRANSMISSION.

The three speed sliding gear transmission shown herewith is of the direct drive variety. The transmission shaft is connected to the clutch shaft by a flexible yoke. This transmission consists of two shafts, X and Y. The squared shaft X carries the sliding gear and the small beveled pinion, and although it is in line with the engine shaft it is not a part of it and is free to rotate separately. Y is the lay shaft, and carries gears D, E, F, G, which are fast upon it. The rims of the gears are bolted to flanges integral with the shaft. The gear A is fast to the engine shaft at all times, and drives the lay shaft through D. Beneath, and meshing with gear G, is the idler gear H, which gives the reverse motion when C is in mesh with it, the driving being by means of the gears A, D, G, H and C. By moving C to the right to mesh with F, the low gear is obtained, and by a still further movement of the sliding gears C and B, which brings B into mesh with E, the intermediate speed is secured. Gear A is hollowed out on the side toward B, forming an internal gear into which B fits, locking the squared shaft to the engine shaft, and thus giving the direct drive. The lay shaft meantime rotates idly. The gear case shafts run in plain bearings, bushed with babbitt metal turned to size, and not split. The gear case is of aluminum. The top is removable and contains a large hand hole. The rear of the case extends outward carrying the bevel gear differential and countershaft, which runs upon four Timken roller bearings. Its right end carries a brake drum. This brake is operated by a foot pedal which also disengages the clutch. At each end of the countershaft near the sprockets is an Oldham coupling which relieves entirely any binding action which might occur through weaving of the frame owing to road inequalities. Whitney side chains, one-half inch roller, detachable at any link, but also having a master link, are used.



The Grout three speed sliding gear transmission.

THE MUFFLER.

The muffler consists of four concentric cylinders with small holes leading from one to the other. The exhaust enters the inner cylinder and after travelling its length passes through to the second, and thus repeating the operation, passes through each cylinder in

succession and out at openings in the rear. The muffler cut out or release, consists of a plate in the shape of a Maltese cross, which can be rotated to cover or uncover a similar shaped opening in the end of the muffler. In case of a muffler explosion, this plate being held only by a spring, is forced away from the end of the muffler thus entirely relieving the pressure.

STEERING GEAR

The steering gear is of the irreversible worm and sector type, with the usual hollow post which contains the rod and sleeve which actuate the spark and throttle. The brass frame of the steering wheel has integral spokes and rim. The wood of the wheel is placed on top and bottom and bolted through this frame. A ball thrust is placed at the top and bottom of the worm. The steering arm is hand forged in one piece to save joints and keying at this vital place. The steering rod, running from the steering arm to the right hand front wheel, is fitted at each end with a hardened ball, with socket blocks on each side spring pressed into contact with the ball, which device automatically adjusts itself to wear and road shocks, thereby making the steering gear sensitive and instantly responsive. The Lemoine steering knuckles are used. The wheels are of a heavy artillery wood type with steel hubs and run on large ball bearings

AXLES

Both axles are of the solid type, square section, three per cent. nickel steel being used in their construction. The front is one and three-eighths square, and the rear one and one-half inches. The lowest point in the car is the front axle, which gives nine and one-half inches road clearance. Long semi-elliptic springs of six leaves each, one and three-fourths inches in width are fitted both front and rear.

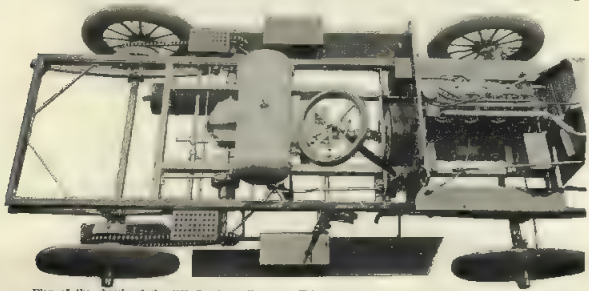
FRAME AND BODY.

The frame is armored wood, the one-fourth inch steel armor plates forming heavy braces at the corners. The engine frame is channel steel, well braced, extending backward far enough to support the transmission as well as the engine. A seamless pressed steel tank of fifteen gallons capacity sufficient for a run of one hundred and seventy-five miles, is supported upon the chassis in such a position as to be under the front seats, but is in no way connected to the body.

The wood body, upholstered in dark green water proof leather, is held to the chassis by four bolts, the removal of which allows the body to be taken off without disturbing a connection of any kind to the mechanism. This was shown effectively when the writer desired a photograph of the chassis, the body was removed and standing on the grass in less time than it takes to tell it.

ON THE ROAD.

In the afternoon, after partaking of a good dinner at the hotel, the writer found himself one of a party of four enjoying a delightful spin in the mild Autumn air through the outskirts of the town. View upon view spread before us with almost bewildering rapidity, as the car glided on with no motion of control of the driver except an occasional slight shifting of the wheel, when suddenly from behind a clump of trees a heavily loaded stone cart appeared. With a rapid motion of the thumb and finger on the throttle, the car instantly slowed down with a cushion like action comparable only with running into a pneumatic pad. After passing the cart, a few notches on the spark and throttle, and the car responds as beautifully as a steamer; picked up its load and sped on again. At another point, at the bottom of a steep hill, after the car was brought almost to a stand by the throttle, a rickety wooden bridge was crossed, a sharp turn to the right was made and we found ourselves with ever increasing speed climbing a long sandy hill. No gear shifts were required and we had climbed this sandy road practically from a standing start



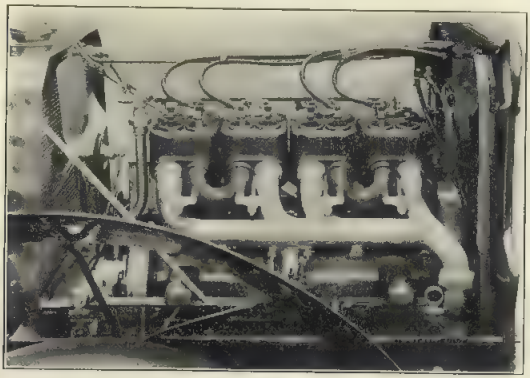
Plan of the chassis of the 1905 Grout gasoline car frame supporting the engine and transmission case, line taxis, the brake on the jack-shaft, the spark and tor on top of the steering whee.

This view shows the arrangement of the channel iron the position of the large seamless pressed steel gaso- throttle control lowers on the stationary notched sec-

which pumps a charge in rotation to each bearing to be oiled. This pump lies in a horizontal position in the bottom of the tank, and is covered with oil as long as any remains, and, as it draws its supply from a small well at the bottom, it will continue to pump until the last drop is used. It is driven by a small belt from the main shaft and rotates in a horizontal plane, its piston being forced inward on its suction stroke by rubbing against the edge of a toothed or serrated ring, within which it revolves. As the pump rotates the end of the plunger is pushed inward by a tooth and suddenly snaps off the end under the action of a stiff spring. This gives the oil a sudden and powerful impulse sufficient to overcome any slight obstructions in the feed pipes. The height of these teeth which is determined when adjusting the pump regulates the stroke. At the instant these impulses are given the outlet of the pump is opposite in succession to the openings into the different pipes leading to the points to be lubricated, thus enabling one plunger to accomplish the work usually performed by several. This arrangement gives the minimum of parts to be looked after, and its failure to operate will be quickly noticed and remedied, as all oiling ceases; while with a number of plungers one may fail to operate, without there being sufficient overheating to be noticeable, resulting usually in the seizing of some bearing. Owing to the fact that the tank is under the hood next the engine, the oil will be practically the same fluidity under all weather conditions, which obviates the necessity of readjustment in cold weather. However, these oilers are adjusted permanently by trial at the factory and no further adjustment is required. The main engine bearings receive oil direct, by means of pipes, and the surplus oil overflows into the crank case. The three middle bearings are oiled by the splash, created by caps on the connecting rod ends; the oil is caught in pockets on the crank case walls, and runs in grooves to the bearings. The cam shaft is also reached by the splash, while the hollow wrist pins take up oil from the cylinder walls, which feeds through holes to the bearing surfaces.

IGNITION.

Jump spark ignition, using a single vibrating coil and a combined timer and distributor has been adopted. This system gives the fewest wires and most simple wiring used on a four cylinder engine, which has a jump spark. Current is furnished by a double set of dry cells or storage batteries located in the box on the running board. By the use of a secondary distributor it is possible for a single coil to do the work of four. This gives but one vibrator to contend with and short secondary wires. As it is practically impossible when using four vibrators to set all alike at high speed, one cylinder may get a much better spark than the others. With a single vibrator, when once set, conditions are uniform for all. The Great method of operating this distributor is unique. Instead of rotating the outside case to which the wires are attached, the central core carrying the contact points is arranged to be rotated by means of a sleeve, which has a helical slot in the side in which a pin slides. The distributor is on the end of a vertical shaft which is driven by mitre gears from the rear end of the cam shaft. This location again allows as short wires as possible. By a suitable linkage from the top of the steering wheel the helical



Left side of the Great 1906 gasoline engine, showing location of the compression relief cocks and spark the method of holding the inlet and exhaust pipes, the plugs, and the pump at the front.

cally operated. The spark plugs are placed over the inlet valves, while a cup shaped compression relief cock is located over each exhaust valve. These relief cocks may be used for introducing kerosene or gasoline into the cylinder for the purpose of cleaning. The valves are turned in one piece from five per cent. nickel steel stock. The push rods are short and supported in three inch bronze guides. These rods are all made adjustable in length by a simple device, consisting of a hexagonal headed cap screw and lock nut, and may be removed without taking out the valve and spring above. By means of this arrangement it is easy to maintain the proper valve lift and adjust for any slight wear. Heavy valve springs, one and one-fourth inch outside diameter, are used, insuring rapid valve action. One cam shaft, carrying eight hardened and tempered tool steel cams, keyed and set screwed to it and driven by aluminum encased steel gears, operates the valves. This shaft runs in bronze bushings.

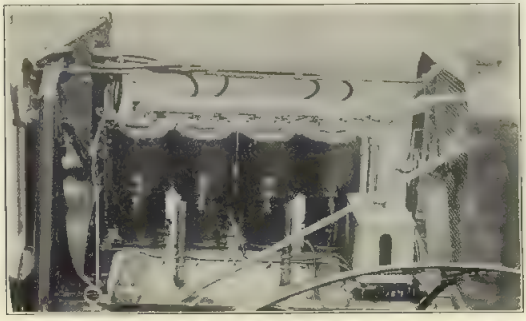
The connecting rods are I section, drop steel forgings, with the usual crank end adjustable bronze bushing, but in addition, the wrist pin end and bushing are split on one side and held together by a bolt and lock nuts for adjustment. The pistons are of gray cast iron, fitted at the top above the wrist pin with four rings. These rings are eccentric, step jointed and specially ground to an exact fit to the cylinder after being compressed. The wrist pins are hollow steel, fastened at each end by set screws, reaching into the middle of the pin and having on the outside a lock nut, and on the inside a split pin.

The drop forged steel crank shaft is supported by five two and one-half inch bearings, each fitted with bronze bushings faced with babbitt. The inlet and exhaust pipes both on the same side of the engine, are held by yokes which facilitates removal. The exhaust pipe is cast iron with easy curves. The inlets are of aluminum. Double tapered and ground brass nipples at the joints of these pipes do away with the necessity of packing; in fact no packing subjected to pressure is anywhere to be found in the engine.

The fly wheel is cast iron, ninety pounds in weight, of good proportion and contains the leather faced aluminum cone clutch, which is thirteen and one half inches in diameter with a two inch face. No governor is used.

RADIATION.

A standard cellular cooler, containing between ninety and one hundred square feet of cooling surface is used. The four bladed fan is of aluminum, eighteen and one-half inches in diameter, ball bearing and driven from the main shaft by a circular section leather belt. A gear pump, run by a rectangular projection on the end of the cam shaft,



Right side of Gray gasoline engine, showing the carburetor, with gas connection at the top, the large hand hold cover held by thumb nuts and carrying the two crank case breathing pipes, the force feed oiler at the front, with pipes leading to each cylinder at the lower ends and at the rear the special Gnom method of rotating the core of the combined timer and distributor, to the rear of the slotted sleeve, inside the upper part to which the wires are fastened, is stationary. The upper end of the slot in the sleeve under the distributor can be seen.

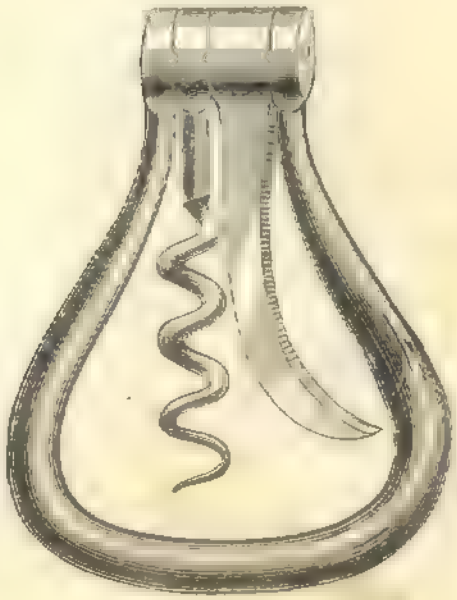
which fits into a corresponding slot in the pump shaft, supplies the water circulation, which is to the top of the cylinder at the hottest place, or the exhaust valve, downward to the bottom of the cylinder and up again to the top, this flow being maintained by a vertical partition in the water jacket, thence to the top of the cooler, and downward to the bottom from which the pump takes its supply. Two neat aluminum pipes which run from cylinder to cylinder form the water pipe connections.

LUBRICATION.

The positive force feed system of oiling is used, feeding oil to each cylinder at the side near the bottom of the stroke into the crank case, and to the main bearings. Under the hood, at the right side of the engine, is a small tank holding about one gallon of oil, having a glass inserted in its side to show the oil level. This tank contains in its base one small piston or plunger of variable stroke,

Corkscrews.

No 70

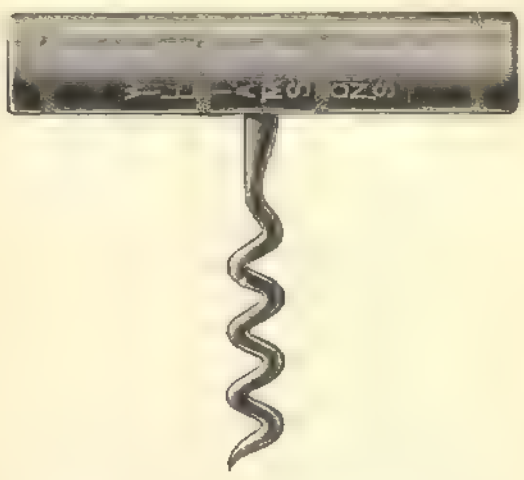


No 1667.

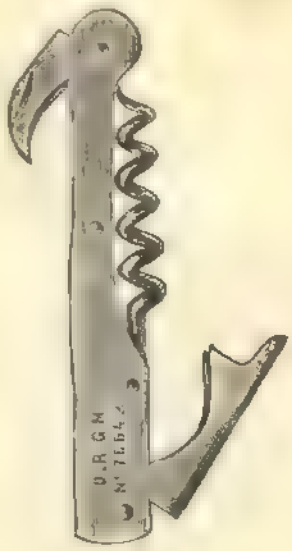
Nos 1061, 62½, 57, 58.

			Per Dozen
No.	**76**	Nickel Plated Screw, Round Wire Handle,	$1 60
No.	**1667**	—Nickel Plated Screw, with Wire Breaker, Forged Steel Handle,	9 00
No.	**1061**	—Nickel Plated Screw, Oval Wire Handle,	2.50
No.	**62½**	Nickel Plated Wire Screw, Oval Wire Handle,	2.50
No.	**57**	Nickel Plated Wire Screw, Oval Wire Handle, Large,	1 80
No.	**58**	—Nickel Plated Wire Screw, Oval Wire Handle,	2.00

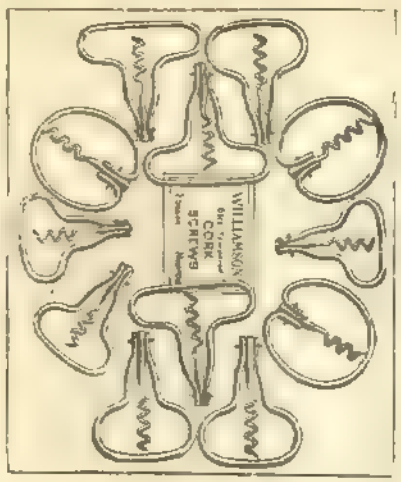
One Dozen in a Box



No 70.



Nos. 3 and 3¼.



			Per Dozen
No. 70		—Pocket, Barrel Handle, Nickel Plated,	$3 00
No.	**3¼**	—Pocket, Power, Twist Screw, Nickel Plated,	9.00
No.	**3**	—Pocket, Power, Cut Screw, Nickel Plated,	9.00

One Dozen in a Box

			Per Card
No. 0500		—Assortment, All Wire, on Card,	$3.00
No. 0509		—Assortment, Half Metal and Half Wood Handles, on Card,	3 00

One Dozen on a Card.

Corkscrews.

Nos. 517, 717 and 73½

No. 17

No. 18.

		Per Dozen
No. 517	—Tinned, Maple Handle, Bessemer Steel Screw,	$1 25
No. 717	—Nickeled, Walnut Handle, Bessemer Steel Screw,	1 75
No. 73½	—Nickeled, Cherry Handle, Norway Steel Screw,	2 50
No. 17	—Nickeled, Maple Handle, Crucible Steel Screw,	3 00
No. 18	—Nickeled, Maple Handle, Twisted Shank,	5.00

No 30.

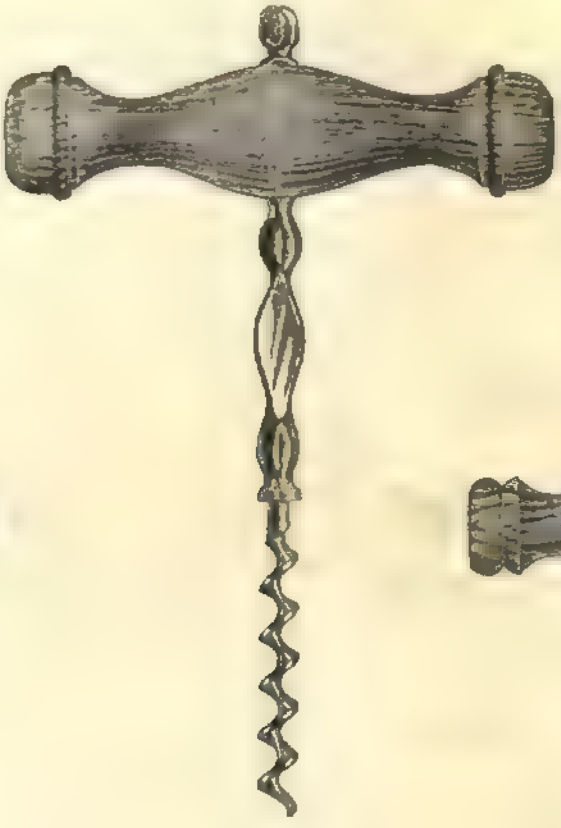
No. 246

No. 47.

		Per Dozen
No. 36	—Nickel Plated, Maple Handle, Duplex Screw,	$3 50
No. 47	—Nickel Plated, Maple Handle, Norway Screw,	2.50
No. 246	—Nickel Plated, Boxwood Handle, Crucible Screw,	3 00

One Dozen in a Box.

Corkscrews.



No. 1455.

Nos. 6144, 6146 and 6147.

Nos. 1244 to 1257

	Per Dozen
No. 6144—Nickel Plated, Maple Handle Size No 1,	$1 80
No. 6146—Nickel Plated, Maple Handle, Size No. 2	2.00
No. 6147—Nickel Plated, Maple Handle Size No 3,	2.50
No. 6148—Nickel Plated, Maple Handle, Size No 4	3 50
No. 1453—Nickel Plated, Rosewood Handle, Size No. 1, Screw and Shank Forged in One Piece,	10 00
No. 1455—Nickel Plated, Rosewood Handle, Size No 3, Screw and Shank Forged in One Piece,	12 00
No. 1244—Nickel Plated, Boxwood Handle, Size No 1,	2 50
No. 1247—Nickel Plated, Boxwood Handle, Size No 3	4 00
No. 1446—Nickel Plated, Rosewood Handle, Size No. 2.	4 00
No. 1448—Nickel Plated, Rosewood Handle, Size No. 3,	5.00
No. 1439—Nickel Plated, Rosewood Handle, Size No. 3, Extra Heavy,	6.00
No. 1257—Nickel Plated, Boxwood Handle, Made Expressly for Bar Use,	2.00

One Dozen in a Box

Corkscrews.

BAKER & HAMILTON

No. 6152.

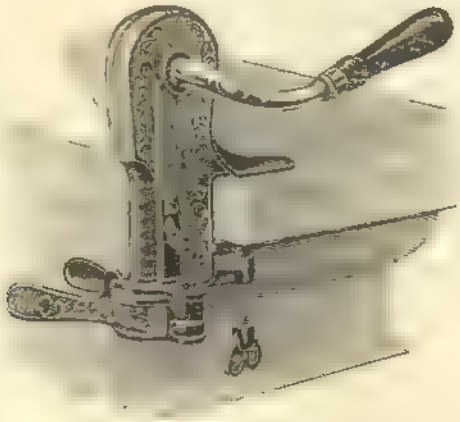
Nos. 7042 and 242.

Nos. 1642, 8082, 2042½.

		Per Dozen
No. 6152	—Waiters', Nickel Plated Screw, Maple Handle,	$4.00
No. 7042	—Nickel Plated Screw, Bronze Cup, Maple Handle,	4.00
No. 242	—Full Nickel Plated, Boxwood Handle,	6.00
No. 1642	—Full Nickel Plated, Rosewood Handle,	8.00
No. 8082	—Full Nickel Plated, Maple Handle,	6.00
No. 2042½	—Full Nickel Plated, 7 In. Stag Handle,	24.00

One Dozen in a Box

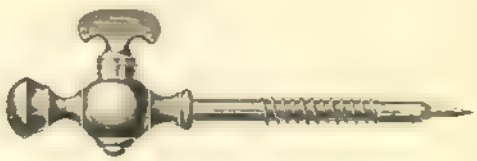
Cork Pullers.



	Each
No. 28—Rapid, Nickel Plated	$4.50
Extra Worms for No. 28,	.50

	Each
No. 1—Champion, Nickel Plated,	$5.50
Extra Worms for No. 28,	.50

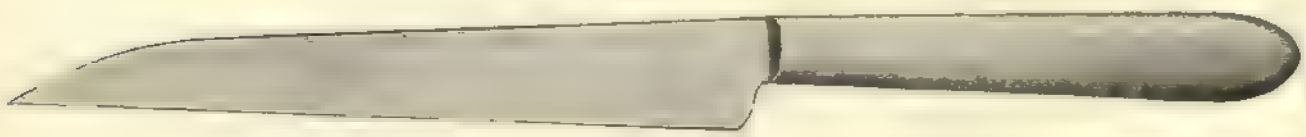
Champagne Taps.



	Per Dozen
No. 2100—Champagne Taps, Silver Plated,	$15.00

One Twelfth Dozen in a Box; Half Dozen in a Package.

Lime Knives.

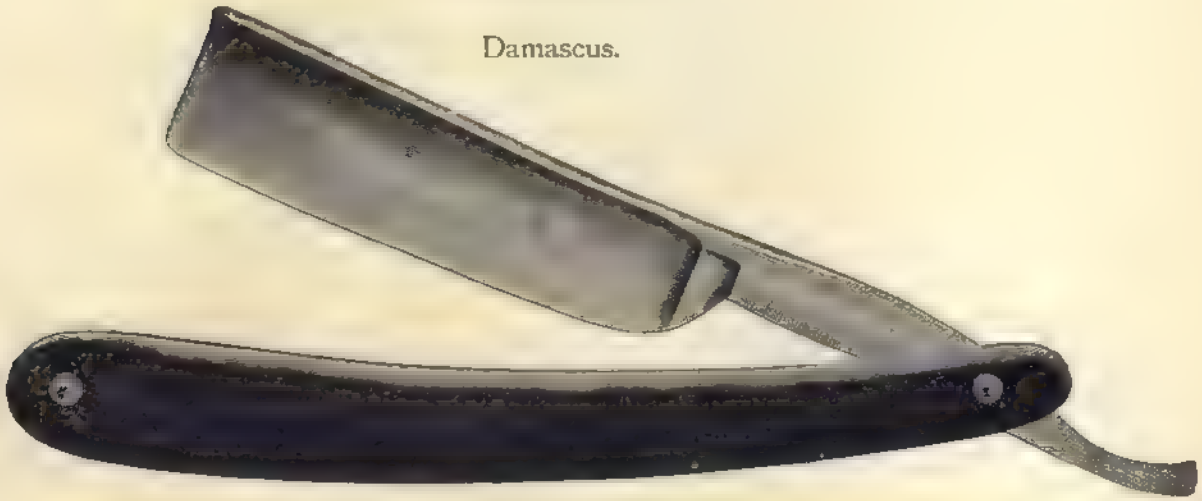


	Per Dozen
No. 2316—Solid Steel, Silver Plated,	$15.00

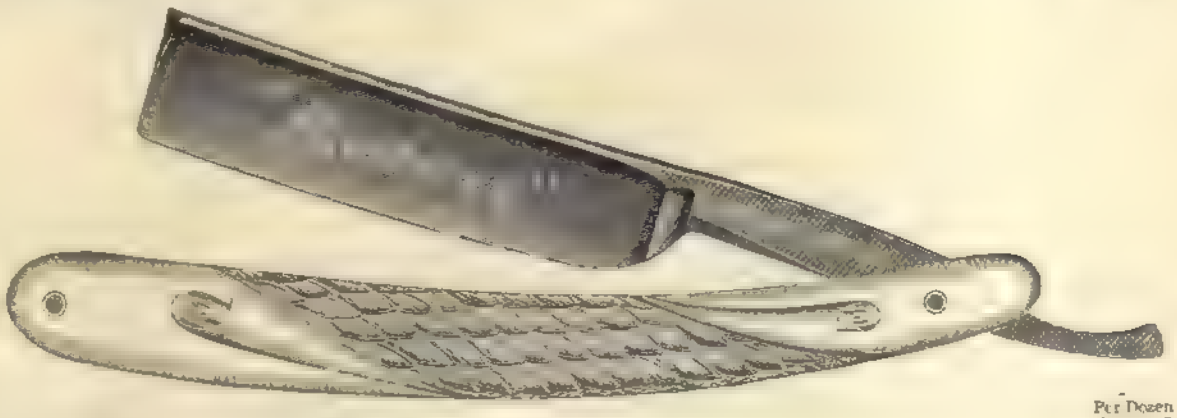
One Dozen in a Box.

Razors.

Damascus.



Per Dozen
No. 51—⅝ In. Blade, Black Rubber Handle, ... $24.00
No. 51—¾ In. Blade, Black Rubber Handle, ... 24.00



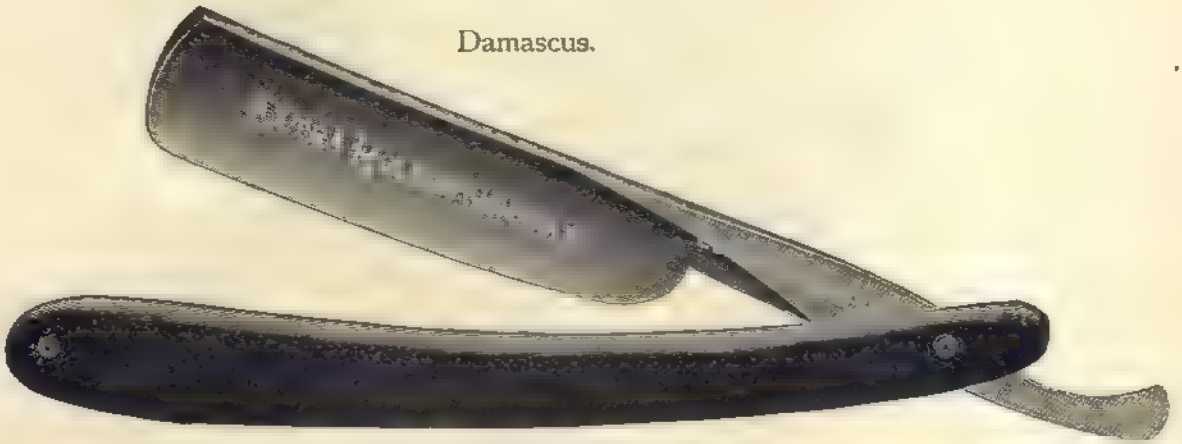
Per Dozen
No. 59—½ In. Blade, Fancy Celluloid Handle, ... $24.00
No. 59—⅝ In. Blade, Fancy Celluloid Handle, ... 24.00
No. 59—¾ In. Blade, Fancy Celluloid Handle, ... 24 00

Per Dozen
No. 400—⅝ In. Blade, Plain White Celluloid Handle, ... $24.00
No. 400—¾ In. Blade, Plain White Celluloid Handle, ... 24.00

Half Dozen in a Box

Razors.

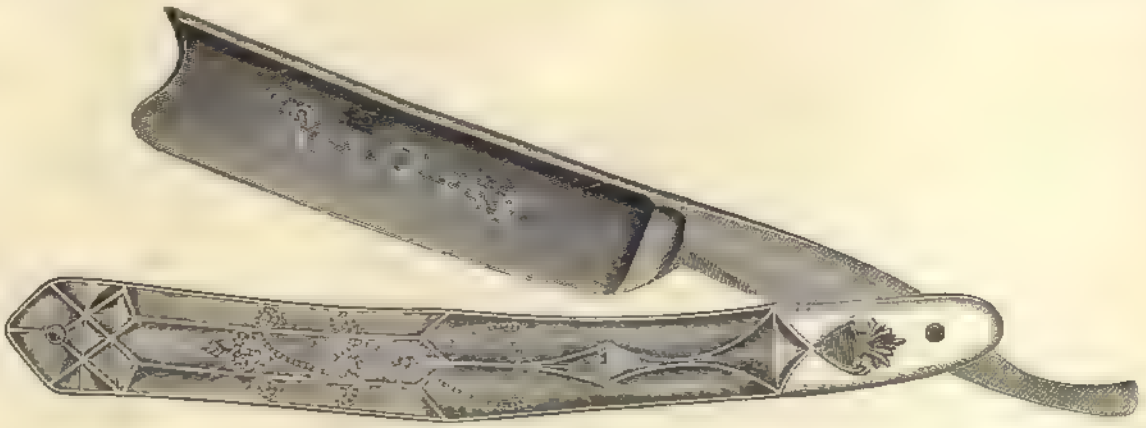
Damascus.



Per Dozen

No. 426—⅝ In. Blade, Black Rubber Handle, ... $30.00

BAKER & HAMILTON



Per Dozen

No. 94—⅝ In. Blade, Fancy Celluloid Handle, Plain Back, ... $36 00
No. 94—¾ In. Blade, Fancy Celluloid Handle, Plain Back, ... 36.00
No. 194—⅝ In. Blade, Fancy Celluloid Handle, Fancy Back, ... 36.00
No. 194—¾ In. Blade, Fancy Celluloid Handle, Fancy Back, ... 36.00

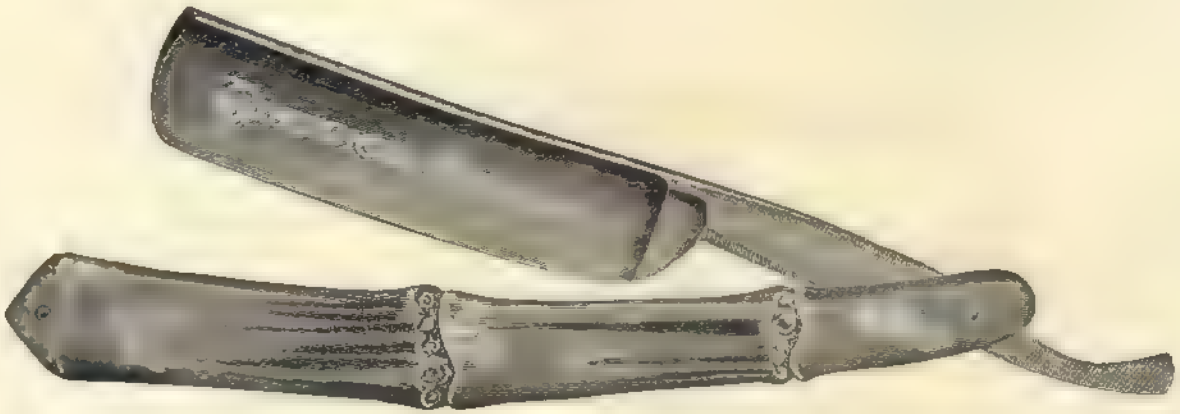
Per Dozen.

No. 1426—⅝ In. Blade, Black Rubber Handle, ... $36 00

Half Dozen in a Box

Razors.

Damascus.

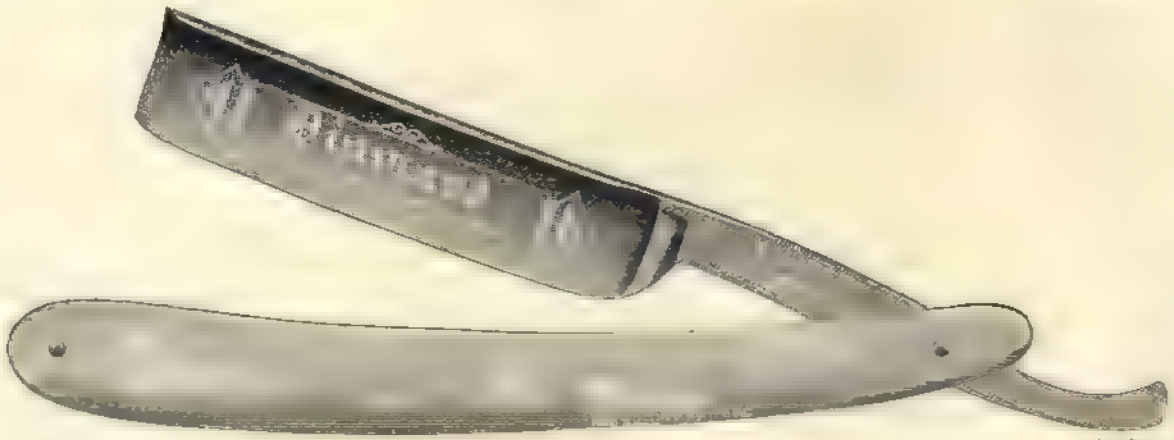


Per Dozen

No. 1801—⅝ In Blade, Tortoise Shell Handle, ... $42.00

Per Dozen

No. 1826—⅝ In Blade, Fancy Rubber Handle, ... $48.00



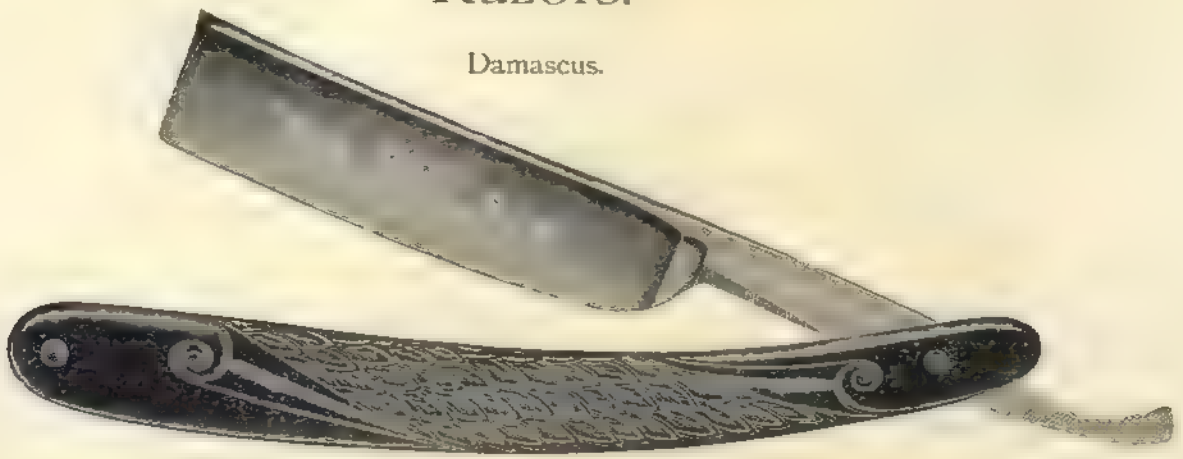
Per Dozen

No. 1956—⅝ In. Blade, Full Pearl Handle, ... $96.00

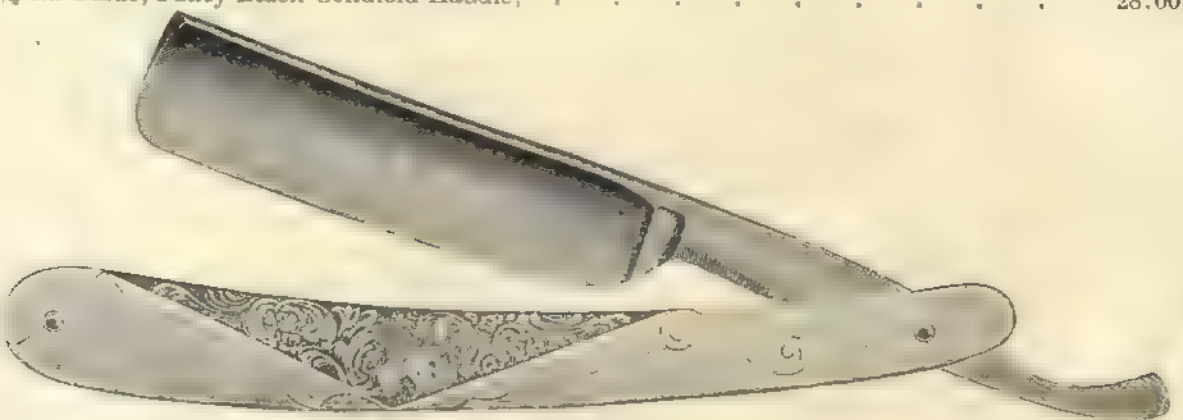
Half Dozen in a Box.

Razors.

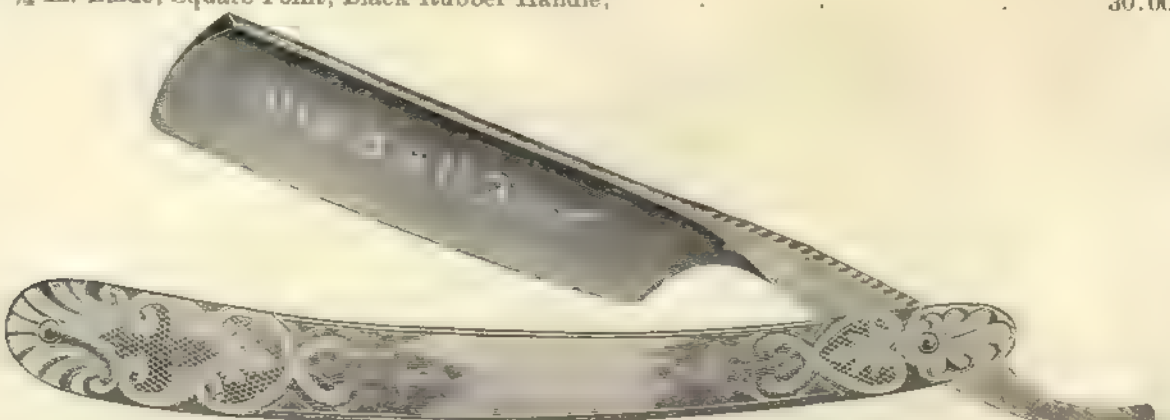
Damascus.



	Per Dozen
No. 81—⅝ In. Blade, Fancy Black Celluloid Handle,	$28.00
No. 81—¾ In. Blade, Fancy Black Celluloid Handle,	28.00



	Per Dozen
No. 16—⅜ In. Blade, Round Point, Fancy Celluloid Handle,	$30.00
No. 16—½ In. Blade, Round Point, Fancy Celluloid Handle,	30.00
No. 16—⅝ In. Blade, Round Point, Fancy Celluloid Handle,	30.00
No. 16—¾ In. Blade, Round Point, Fancy Celluloid Handle,	30.00
No. 116—½ In. Blade, Square Point, Black Rubber Handle,	30.00
No. 116—⅝ In. Blade, Square Point, Black Rubber Handle,	30.00
No. 116—¾ In. Blade, Square Point, Black Rubber Handle,	30.00



	Per Dozen
No. 69—⅝ In. Blade, Fancy Celluloid Handle,	$30.00
No. 69—¾ In. Blade, Fancy Celluloid Handle,	30.00

Half Dozen in a Box

Razors.

Damascus.

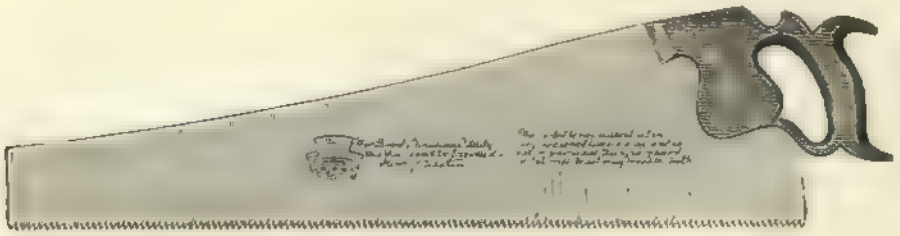
	Per Dozen
No. 3—⅝ In. Blade, Black Rubber Handle,	$12.00
No. 3—¾ In. Blade, Black Rubber Handle,	12.00

	Per Dozen
No. 0106—⅝ In. Blade, Black Rubber Handle,	$18.00
No. 0106—¾ In. Blade, Black Rubber Handle,	18.00

	Per Dozen
No. 63—⅝ In. Blade, Black Rubber Handle,	$18.00
No. 63—¾ In. Blade, Black Rubber Handle,	18.00

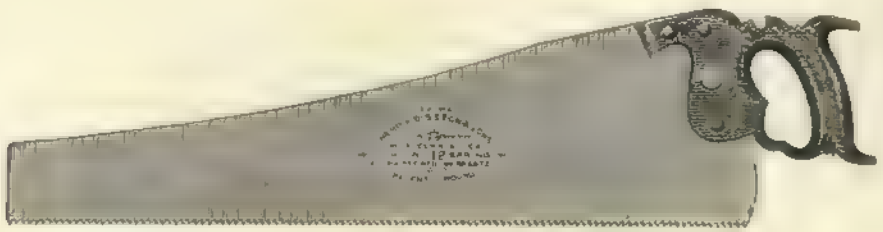
Half Dozen in a Box.

Hand and Rip Saws.



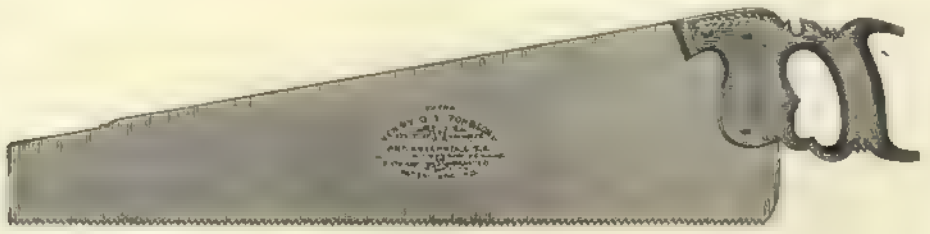
Extra London Spring Steel Skew Back, Warranted, Carved and Polished Applewood Handle, 5 Improved Screws.

		Rip	Hand
No. 120—Disston's,	Inches,	**28**	**26**
	Code	Agoreen.	Agoresw.
	Points to Inch,	4½ to 6	6 to 12
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$36.00	32.00



Extra London Spring Steel, Skew Back, Warranted, Carved and Polished Applewood Handle, 4 Improved Screws.

		Rip	Hand
No. 112—Disston's,	Inches,	**28**	**26**
	Code	Agostare.	Agostizar.
	Points to Inch,	4½ to 6	7 to 9
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$33 00	29 00

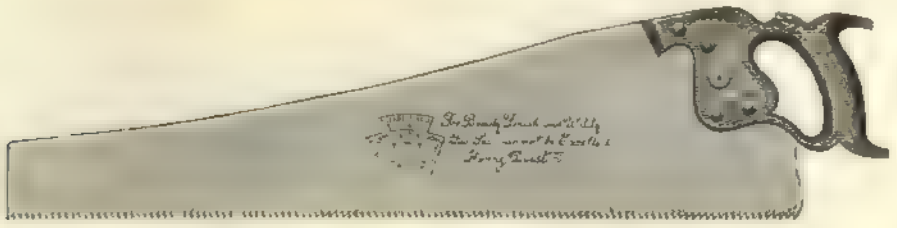


Extra London Spring Steel, Warranted, Carved and Polished Handle, 4 Improved Screws.

		Rip		Hand	
No. 12—Disston's,	Inches,	**28**	**26**	**28**	**26**
	Code	Agotarias.	Agotsen.	Agoursr.	Agoureiro.
	Points to Inch,	4½ to 6	4½ to 6	5 to 12	5 to 12
	Weight Per Dozen, lbs.,	27	24	27	24
	Per Dozen,	$32.00	28.00	32.00	28.00

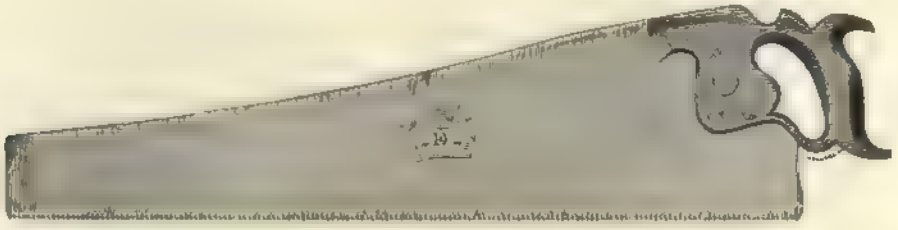
One-Third Dozen in a Box

Hand and Rip Saws.



Spring Steel, Skew Back, Warranted, Applewood Handle, Polished Edge, 5 Improved Screws.

		Rip.	Hand.
No. D100—Disston's,	Inches,	**28**	**26**
	Code	Agracejo.	Agraelado
	Points to Inch,	4 to 6	7 to 9
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$26.00	23.00



Spring Steel, Skew Back, Warranted, Applewood Handle, Polished Edge, 5 Improved Screws.

		Rip.		Hand.	
No. D8—Disston's,	Inches,	**28**	**26**	**28**	**26**
	Code	Agradadas.	Agradado.	Agradeoir.	Agrado.
	Points to Inch,	4 to 6	4 to 6	5 to 12	5 to 11
	Weight Per Dozen, lbs.,	27	24	27	24
	Per Dozen,	$25.00	22.00	25.00	22.00

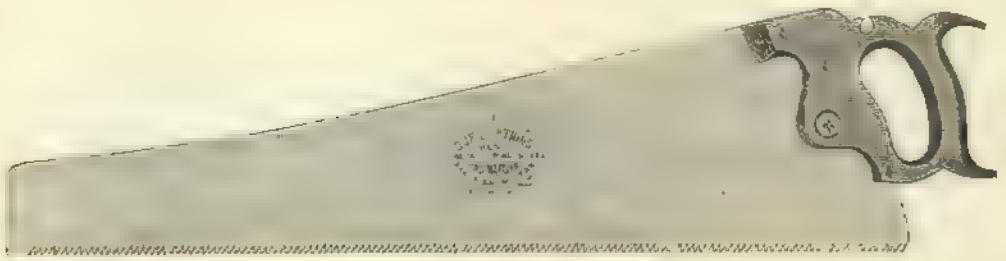
Cast Steel, Grained Blade, Warranted, Beech Handle, Polished Edge, 4 Improved Screws.

		Rip.		Hand
No. 7—Disston's,	Inches,	**28**	**26**	**26**
	Code	Agraire.	Agrairen.	Agrailam.
	Points to Inch,	4½ to 6	4½ to 6	5 to 11
	Weight Per Dozen, lbs.,	27	24	24
	Per Dozen,	$23.50	20 00	20.00

One-Third Dozen in a Box.

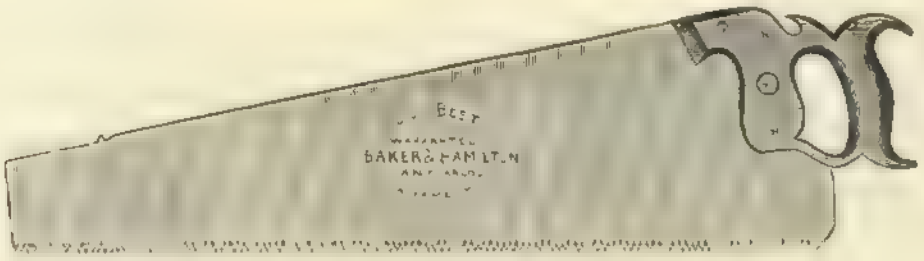
BAKER & HAMILTON

Hand and Rip Saws.



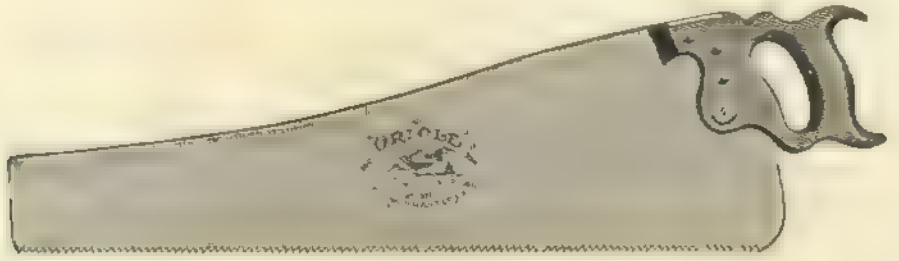
Selected Spring Steel, Skew Back, Carved and Polished Applewood Handle, 4 Improved Screws.

		Rip.	Hand.
No. 50—Lightning,	Inches,	**28**	**26**
	Code	Agramiss.	Agranadados.
	Points to Inch,	4½ to 6	4½ to 6
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$23.75	21.25



Extra Cast Steel, Beech Handle, Polished Edge, 4 Improved Screws.

		Rip.	Hand.
No. 70—Our Best,	Inches,	**28**	**26**
	Code	Agraspes.	Agrania.
	Points to Inch,	4½ to 6	5 to 10
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$15.00	13.00

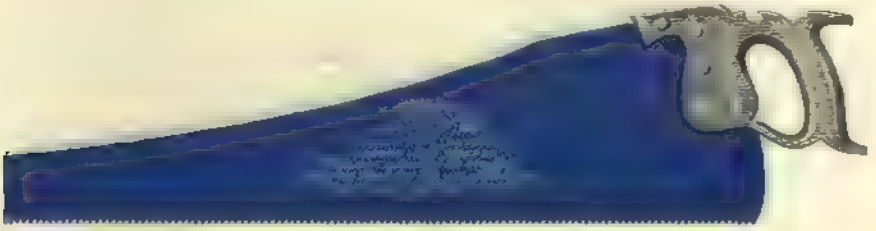


Cast Steel, Skew Back, Beech Handle, 4 Improved Screws.

		Rip.	Hand.
No. 110—Oriole,	Inches,	**28**	**26**
	Code	Agraviaba.	Agravioso.
	Points to Inch,	4½ to 6	6 to 9
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$13.75	12.50

Half Dozen in a Box.

Hand and Rip Saws.



Best Spring Steel, Skew Back, Blue Finish, Curved and Polished Applewood Handle, 4 Improved Screws.

		Hand
No. 500—Blue,	Inches,	**26**
	Code,	Agranzando.
	Points to Inch,	6 to 9
	Weight Per Dozen, lbs.,	25
	Per Dozen,	$21.00

BAKER & HAMILTON

Cast Steel, Beech Handle, Polished Edge, 3 Brass Screws

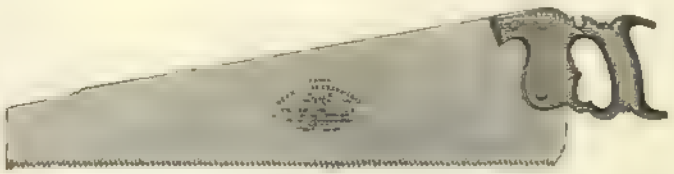
		Back.	Hand.
No. 101—Star of the West,	Inches,	**28**	**26**
	Code,	Agranzando.	Agranzando.
	Points to Inch,	4 to 5½	6 to 9
	Weight Per Dozen, lbs.,	27	24
	Per Dozen,	$9.65	7.90

Cast Steel, Beech Handle, 3 Brass Screws.

		Hand
No. 100—Eureka,	Inches,	**26**
	Code,	Agranzando.
	Points to Inch,	6 to 9
	Weight Per Dozen, lbs.,	23
	Per Dozen,	$6.80

Half Dozen in a Box

Panel Saws.

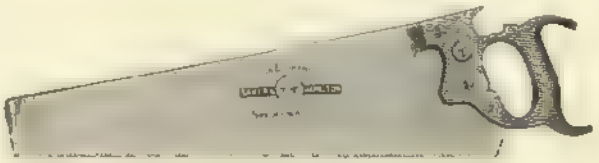


Extra Refined London Spring Steel, Warranted, Carved and Polished Handle, 4 Improved Screws.

No. 12—Disston's,	Inches,	**24**	**22**	**20**	**18**	**16**
	Code	Agrestosi.	Agreta.	Agrestere.	Agreyeur.	Agriabais.
	Points to Inch,	7 to 11	8 to 12	8 to 11	8 to 11	8 to 11
	Weight, Per Dozen, lbs.,	21	18	15	13	12
	Per Dozen,	$26.00	24.00	22.00	20.00	18.00

Cast Steel, Grained Blade, Warranted, Beech Handle, Polished Edge, 4 Improved Screws.

No. 7—Disston's,	Inches,	**24**	**22**	**20**	**18**	**16**
	Code	Agricolist.	Agricultor.	Agrieles.	Agrietsbs.	Agrietsare.
	Points to Inch,	7 to 11	8 to 11	8 to 11	8 to 11	8 to 11
	Weight, Per Dozen, lbs.,	21	18	15	13	12
	Per Dozen,	$19.00	18.00	16.00	14.00	13.00



Selected Spring Steel, Skew Back, Carved and Polished Applewood Handle, 4 Improved Screws.

No. 50—Lightning,	Inches,	**24**	**22**	**20**	**18**
	Code	Agrillaba.	Agrillels.	Agrillo.	Agrimant.
	Points to Inch,	7 to 10	8 to 11	8 to 11	8 to 11
	Weight, Per Dozen, lbs.,	21	18	15	13
	Per Dozen,	$18.00	17.00	16.00	15.00

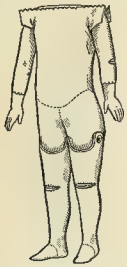
Cast Steel, Beech Handle, Polished Edge, 3 Brass Screws.

No. 101—Star of the West,	Inches,	**24**	**22**	**20**	**18**	**16**
	Code	Agrionios.	Agriopus.	Agrionis.	Agriotser.	Agriotipus.
	Points to Inch,	7 to 10	7 to 10	9 to 11	9 to 11	9 to 11
	Weight, Per Dozen, lbs.,	21	18	15	13	12
	Per Dozen,	$7.40	6.80	6.30	5.90	5.45

Nos. 12, 7 and 50 One-Third Dozen; No.101 Half Dozen in a Box.

ALL KID DOLL BODIES.

With riveted hip joints, fine quality full kid, extra stout body, with loose kid at shoulder for fastening on head, bisque hands.



	Height.	Width of shoulder.	Pack'd.	Per doz.
5220-20	9 in.	2¾ in.	½ doz.	$2.00
5221-40	13 in	5 in	⅓ doz.	4.00
5222-90	17½ in.	5½ in.	1-12 doz.	9.00
5223-105	18½ in.	5½ in.	1-12 doz.	10.50
5224-120	20 in.	6 in.	1-12 doz.	12.00

ALL KID DOLL BODIES.

With riveted hip and knee joints, extra full sized body, with loose kid at shoulder for fastening on head, bisque hands.

	Height.	Width of shoulder.	Per doz.
5225-45	10 in	2¾ in.	$4.50
5226-75	12 in.	3½ in.	7.50
5227-90	14½ in.	4 in.	9.00
5228-120	16½ in.	4½ in	12.00
5229-135	18½ in	5 in	13.50
<330-180	19½ in.	5½ in.	18.00
5231-240	20½ in.	6 in.	24.00

CORK STUFFED KID BODIES.

With riveted hip and knee joints, loose kid at shoulder for fastening on head. Celluloid arms. Each in a box.

	Height.	Width of shoulder.	Per doz
5232-90	10½ in.	3¾ in.	$9.00
5233-135	13 in.	4 in.	13.50
5234-180	16½ in	4½ in	18.00
5235-270	19 in.	5½ in	27.00

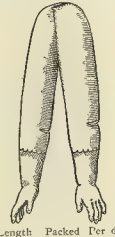
CORK STUFFED KID BODIES.

With flexible hip and knee joints corded edge, celluloid hands, reenforced knee joints. Each in a box.

	Height	Width of shoulder	Per doz.
5236-25	9½ in.	2¾ in.	$2.50
5237-40	12 in.	3½ in.	4.00
5238-90	17 in.	4 in.	9.00
5239-120	19 in.	4½ in.	12.00

KID DOLL ARMS.

Fine quality kid arms with bisque hands.



	Length	Packed	Per doz pair
5240-7½	4½ in.	1 doz.	$0.75
5241-15	5½ in.	½ doz.	1.50
5242-20	6 in.	½ doz.	2.00
5243-22½	7½ in.	½ doz.	2.25
5244-35	9 in.	½ doz.	3.50
5245-40	10 in.	½ doz.	4.00
5246-45	10½ in.		4.50

NEW STYLE COMPOSITION BISQUE HEADS.

These heads are made of composition that can be hardly distinguished from the real bisque. They are much cheaper in price, natural glass eyes and Rembrandt hair. Nos. 3972-22½ and 3973-45 have closing eyes.

	Size Height.	Size shoulder.	Pack'd.	Per doz
3970-8½	3½	1¾ x 2¾	1 doz.	$0.85
3971-17½	4	2½ x 3½	½ doz.	1.75
3972-22½	5¼	2¾ x 4	½ doz.	2.25
3973-45	8	3¼ x 5¼	1-3 doz.	4.50

FOUR SPECIAL BISQUE DOLL HEADS.

Genuine bisque heads, with natural glass eyes, open mouth showing teeth. Nos. 3975-4½ and 3977-10 Rembrandt hair, Nos. 3976-7½ and 3978-15 curly hair.

3975-4½

3977-10

	Height.	Size shoulder.	Pack'd	Per doz
3975-4½	3	1¾ x 2½	1 doz.	$0.45
3977-10	4	2¼ x 3	1 doz.	1.00

3976-7½ 3 1¾ x 2¾ 1 doz... .75

3978-15 4 2¼ x 3¼ ½ doz .. 1.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

3891 20

3892-30

3893-40

3894-50

3895 72½

3896-85

"GOLD MEDAL" BISQUE DOLL HEADS.

Finest quality bisque head with parted and sewed wig, tied with colored ribbons, open mouth showing teeth. All with closing eyes.

	Height	Shoulder	Packed	Per doz.
3891-20	4 in.	2 x 3 in.	½ doz.	$2.00
3892-30	4¼ in.	2¼ x 3½ in.	½ doz.	3.00
3893-40	5 in.	2¼ x 4 in.	½ doz.	4.00
3894-50	5½ in.	2½ x 4½ in.	½ doz.	5.00
3895-72½	5¾ in.	3 x 4¾ in.	½ doz.	7.25
3896-85	6 in.	3¼ x 5	1/12 doz.	8.50
3897-105	6½ in.	3¼ x 5½ in.	1/12 doz.	10.50
3898-135	7 in.	3¼ x 5½ in.	1/12 doz.	13.50
3899-165	7½ in.	3¼ x 6 in.	1/12 doz.	16.50
4000-180	8 in.	3¼ x 6 in.	1/12 doz.	18.00

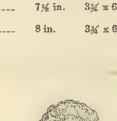
3898-135

3897-105

3899-165

4001-30

4002-40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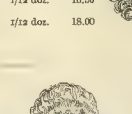

4004-75

4005-85

BISQUE DOLL HEADS.

With new style wavy pompadour hair fastened in back with strips of celluloid extra fine quality bisque head, closing eyes, open mouth showing teeth.

	Height	Shoulder	Packed	Per doz.
4001-30	4½ in.	2⅛ x 3¼ in.	½ doz.	$3.00
4002-40	5 in.	2½ x 4 in.	½ doz.	4.00
4003-60	6 in.	2¾ x 5 in.	½ doz.	6.00
4004-75	6¼ in.	3 x 4½ in.	1/12 doz.	7.50
4005-85	6½ in.	3¼ x 4¾ in.	1/12 doz.	8.50
4006-105	7 in.	3½ x 5½ in.	1/12 doz.	10.50

4006-105

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

4007-30

4008-40

4009-60

4010-75

4011-85

4012 105

4012-180

"BEAUTY" BISQUE DOLL HEADS.

Finest quality bisque head, closing eyes, very pretty faces, sewed wig, long curly hair, open mouth showing teeth. All with closing eyes. Extra fine quality Walterhausen.

	Height	Shoulder	Heads in box	Per doz.
4007-30	3¾	1⅜ x 2¾	½ doz	$ 3.00
4008-40	4½	2¼ x 3½	¼ doz.	4.00
4009-60	4¾	2½ x 3½	¼ doz.	6.00
4010 75	5	2¾ x 3¾	1/12 doz.	7.50
4011-85	5½	3 x 4	1/12 doz.	8.50
4012-105	6	3¾ x 4¾	1/12 doz.	10.50
4013-135	6½	3½ x 5	1/12 doz.	13.50
4014-180	7	3½ x 5½	1/12 doz.	18.00
4015-240	7¼	3¾ x 5½	1/12 doz.	24.00
4016-270	7½	3¾ x 5¾	1/12 doz.	27.00

4013-135

4015-240

4016-270

4017-17½

4018-22½

4019-40

INDESTRUCTIBLE METAL DOLL HEADS.

These heads are made of fine enameled bisque on solid brass, and are practically indestructible. Painted hair and eyes.

	Height	Shoulder	Heads in box	Per doz.
4017-17½	3¼ in.	1¾ x 2¼ in.	½ doz.	$1.75
4018 22½	3¾ "	2 x 2½ "	¼ "	2.25
4019-40	5 "	2¼ x 3¼ "	¼ "	4.00

4020-22½

4021-30

4022-40

4023-45

INDESTRUCTIBLE METAL DOLL HEADS.

With glass eyes and painted hair Head is made of fine enameled bisque on solid brass, and practically indestructible.

	Height	Shoulder	Heads in box	Per doz
4020-22½	3 in.	1¾ x 2 in.	½ doz.	$2.25
4021-30	3¾ "	1¾ x 2¼ "	½ "	3 00
4022-40	4 "	2½ x 2½ "	½ "	4.00
4023-45	4¾ "	2¼ x 3 "	½ "	4.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

3162-3½

3163-4½

3164-7½

3165-8½

3166-12½

3167-15

3168-17½

CHINA DOLL HEADS.

We do not Break Packages.

These are the best quality China Doll Heads with black painted hair, rosy cheeks, painted eyes, and all very finely finished in every respect.

	Height	Size Shoulder	Heads in box	Per doz.
3162- 3½	3 in.	1½ x 2¼ in.	2 doz.	$0.35
3163- 4½	3½ "	1¾ x 2½ "	1 "	45
3164- 7½	4 "	2 x 3 "	1 "	75
3165- 8½	4¼ "	2¼ x 3¼ "	1 "	.85
3166-12½	4½ "	2½ x 3½ "	1 "	1.25
3167-15	5 "	2¾ x 4 "	½ "	1 50
3168-17½	5¼ "	3 x 4¼ "	½ "	1.75
3169-20	5½ "	3¼ x 4½ "	½ "	2.00
3170-35	6 "	3½ x 5 "	½ "	3.50

3169-20

3170-35

3979-20

3981-20

3982-22½

3983-25

3984-27½

3985 30

3987-40

3986-35

BISQUE DOLL HEADS.

Fine quality Bisque Doll Heads with closing eyes. Open mouth showing teeth. Long curly hair.

All with closing eyes.

	Height	Size Shoulder	Heads in box	Per doz
3979-20	4 in.	2½ x 3½ in.	½ doz.	$2 00
3981-20	4 "	2¾ x 3¾ "	½ "	2 00
3982-22½	4¾ "	2¾ x 3¾ "	½ "	2 25
3983-25	4½ "	2¾ x 3½ "	½ "	2.50
3984-27½	4¾ "	2½ x 3¾ "	½ "	2.75
3 185-30	5 "	2½ x 4 "	½ "	3 00
3986-35	5¼ "	3 x 4¼ "	1/12 "	3 50
3987-40	5½ "	2⅞ x 4½ "	1/12 "	4.00
3988-45	5¾ "	3 x 4¾ "	1/12 "	4.50
3989-60	6 "	3 x 5 "	1/12 "	6.00
3990-75	6 "	3¼ x 5 "	1/12 "	7 50

3989-60

3988 45

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

4027 45

4028-60

4029-75

4030-85

4031-105

METAL DOLL HEADS.

With long curly hair, closing eyes, open mouth showing teeth. Head is made of fine enameled bisque on solid brass.

	Height	Shoulder	Dolls in box	Per doz
4027- 45	4 in.	2 x 2½ in.	½ doz.	$ 4 50
4028- 60	4½ "	2¾ x 3 "	½ "	6 00
4029- 75	4¾ "	2¾ x 3¾ "	1 12 "	7 50
4030- 85	5 "	2⅞ x 3⅞ "	1/12 "	8 50
4031-105	5¾ "	2¾ x 3¾ "	1/12 "	10 50
4032-120	6 "	3¼ x 4 "	1 12 "	12 00
4033-180	6¾ "	3½ x 4¼ "	1 12 "	18 00

4032 120

4033-180

4034-45

4035-60

4036-85

4037 90

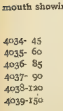
4038-120

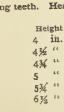
METAL DOLL HEADS.

With long curly hair, sewed wig, parted in center and tied with colored ribbons, closing eyes, open mouth showing teeth. Head is made of fine enameled bisque on solid brass.

	Height	Shoulder	Dolls in box	Per doz
4034- 45	4 in.	2 x 2½ in	½ doz.	$ 4 50
4035- 60	4½ "	2½ x 3 "	½ "	6 00
4036- 85	4¾ "	2¾ x 3¾ "	1/12 "	8 50
4037- 90	5 "	2¾ x 3½ "	1/12 "	9 00
4038-120	5¾ "	3 x 3¾ "	1 12 "	12 00
4039-150	6½ "	3⅜ x 4 "	1 12 "	15 00

4 39-150


4042-35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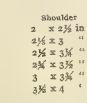
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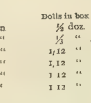

4044-60

CELLULOID DOLL HEADS.

Very light and unbreakable. Painted hair and eyes.

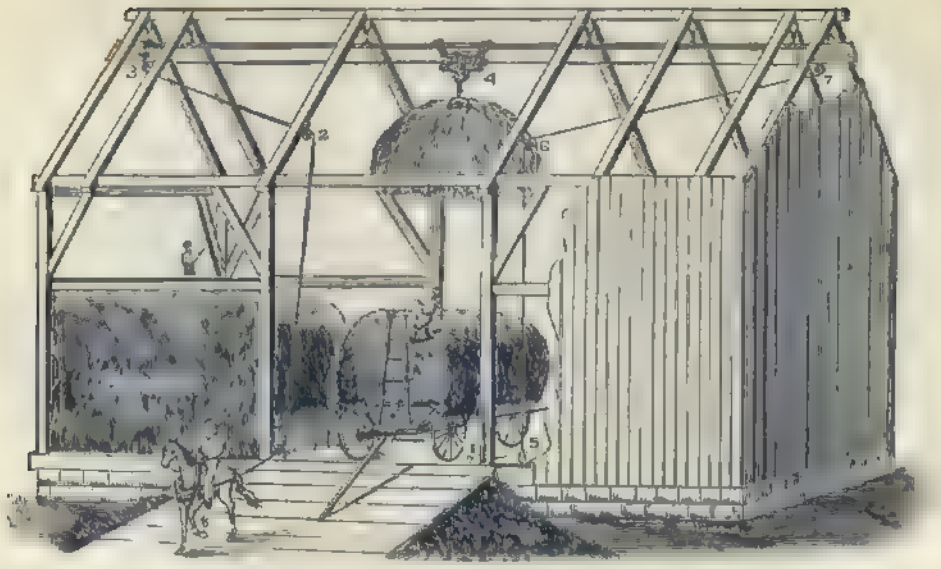
	Height	Shoulder	Dolls in box	Per doz.
4040-20	3¾ in.	1¾ x 3 in.	1 doz.	$2.00
4041-45	5¾ "	2½ x 4 "	½ "	4.50

Celluloid Doll Heads with glass eyes.

	Height	Shoulder	Dolls in box	Per doz.
4042-35	3¾ in.	2 x 3 in.	½ doz.	$3.50
4043-40	4¾ "	2¼ x 3¼ "	½ "	4 00
4044-60	5 "	2½ x 4¼ "	½ "	6.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

HAY CARRIER OUTFITS.



This cut shows the arrangement of a system of putting hay into a barn by horse power, doing it at less cost and more expeditiously than in the old-fashioned way.

Estimates furnished on application. In inquiring for prices, please state if wood or steel track is wanted, length of barn, number of rafters, height from floor to ridgepole, and send rough sketch of barn showing location of doors and bays.

The material needed for putting up and operating a hay carrier is For steel track, one No. 10 carrier, track the length of the barn, track hangers and rafter brackets for each pair of rafters, hay fork (your choice), three to five pulleys, rope hitch and floor hooks. For hoisting rope, a ¼ in. manilla rope, twice the length of track plus three times the distance from floor to ridgepole plus ten or twelve feet will be necessary. The rope for tripping fork and drawing carrier back should be ⅜-in. manilla the length of track plus the height from floor to track. Manilla rope measures about ¾-in. 6 ft. to the pound, ½-in. 20 feet to the pound.

For wood track, as above, substituting No. 6 carrier and hanging hooks instead of track hangers.

Fig. 22

Fig. 23

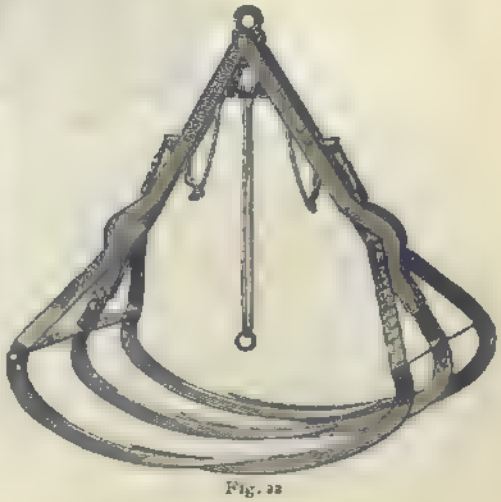


Fig. 22

For descriptions and prices see page 93.

HAY CARRIER OUTFITS.

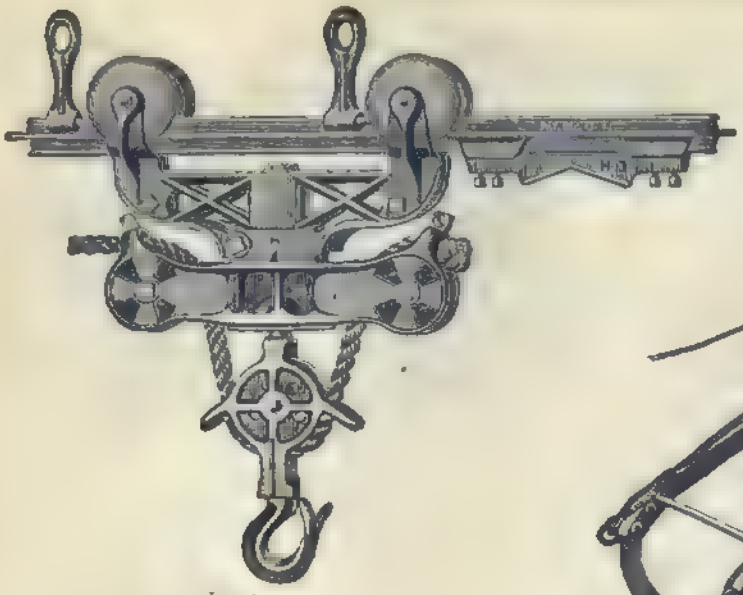


Fig. 1.

Fig. 20.

Fig. 2.

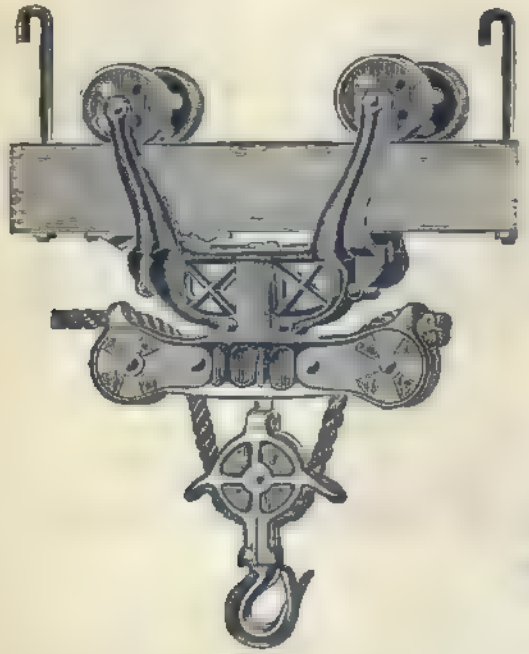


Fig. 7

Fig. 4

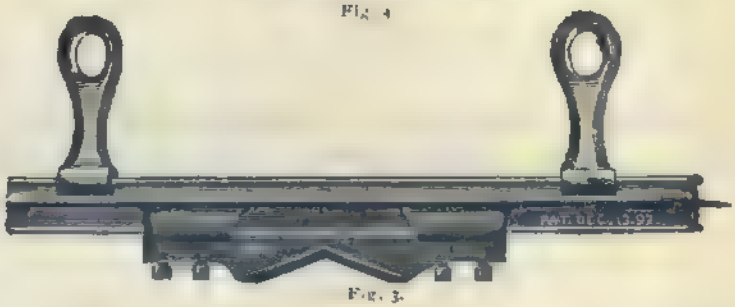


Fig. 3.

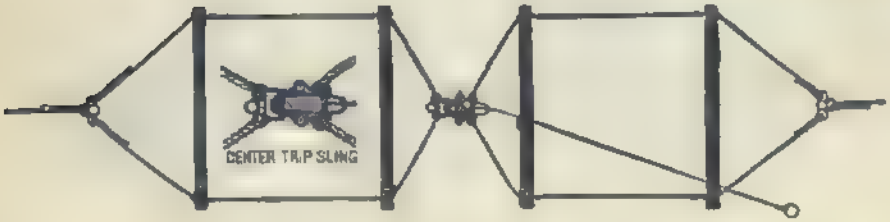


Fig. 18.

Fig. 19.

For descriptions and prices see page 93.

HAY CARRIER OUTFITS.

Fig. 14.

Fig. 11.

Fig. 12.

Fig. 13.

Fig. 10.

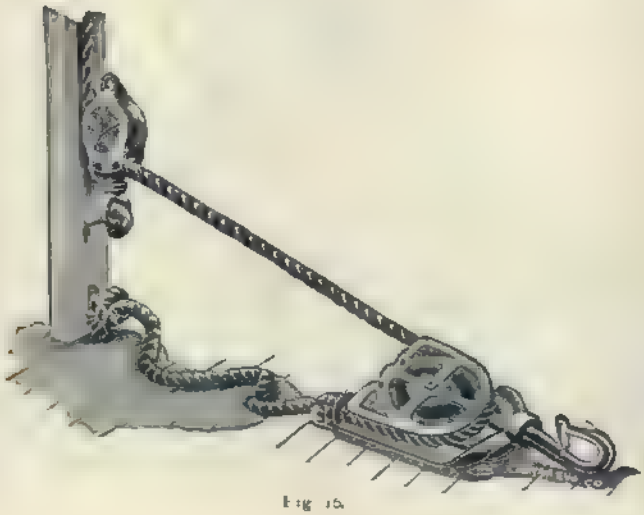


Fig. 16.

Fig. 17.

Fig. 6.

Fig. 9.

Fig. 7.

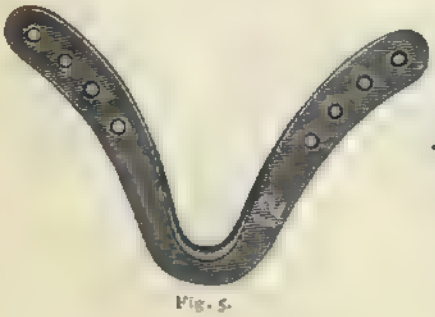


Fig. 5.

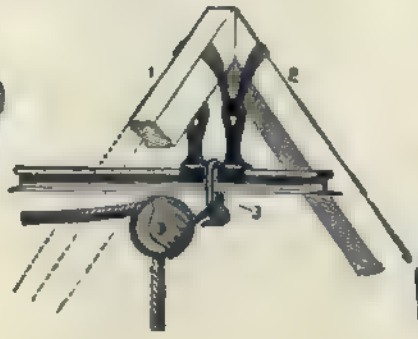


Fig. 15.

Fig. 8.

For descriptions and prices see page 93.

HAY CARRIER OUTFITS.

(See pages 90, 91 and 92 for Illustrations.)

Fig. 1. Page 91.

Columbian Steel Track Carrier.
The feature with the swivel carrier is that the two rope sheaves are hung on a turn-table which swivels on the carrier as shown in the cut. The carrier is made of malleable iron, is strong, durable and guaranteed to work perfectly. This style of carrier is particularly valuable in barns that take hay from both ends toward the centre.
Price, each $7.00 $5.60

Fig. 2. Page 91.

Swivel Hay Carrier for Wood Track.
Where a wood track is used this carrier will give perfect satisfaction. Can be used on any wood track that is four inches wide. Price, each 6.50 5.20

Fig. 3. Page 91.

Columbian Two Beaded Steel Track.
Acknowledged by all to be the strongest and easiest put up track yet invented. The trip block shown in cut, is attached to track by set screws, and can be placed at any point in track where it is desirable to take up load. Price of track, including one trip block, per ft. . . 20 .16
Price of extra trip blocks, each . . . . .50 .40

Fig. 4. Page 91.

Columbian Two Beaded Steel Track.
The cut shows the manner of connecting the sections of track by means of a heavy coupling preventing the track from bending at the joints or coming apart. Price, each . . . . . .50 .40

Fig. 5. Page 92.

Rafter Brackets.
Best quality malleable iron. One of these brackets to be nailed to each pair of rafters.
Price, per doz. . . . . 80 .05

Figs. 3 and 4. Page 91.

Track Hangers.
Shown in illustrations attached to track. One required for each rafter bracket. Price, per doz. . . . . 1.30 .10

Fig. 6. Page 92.

Straight Hanging Hook.
For hanging wood track from rafter brackets.
Price, per doz. . . . . 1.40 .10

Fig. 7. Page 92.

Jointed Hanging Hooks.
For hanging wood track from ridge board or other timber. Price, per doz. . . . . 2.15 .15

Fig. 8. Page 92.

Wood Track.
The cut shows method of hanging wood track from board nailed near top of rafters. Use straight hanging hook (Fig. 6. Page 92).

Fig. 9. Page 92.

Floor Hooks.
Very strong, used for hanging pulleys, etc.
Price, per doz. . . . . 1.50 .10

Fig. 10. Page 92.

Bumper and Hanger.
A combination hanger for preventing carrier running off ends of track; two are sent with each outfit, free. Price of extra hangers and bumper, each . . . . . .50 .40

Fig. 11. Page 92.

Knot Passing Pulleys No. 25.
Price, per doz. . . . . 4.25 .35

Fig. 12. Page 92.

Common Pulleys No. 23.
Price, per doz. . . . . 3.75 .25

Fig. 13. Page 91.

Iron Pulleys No. 27.
Price, per doz. $4.00 $0.30

Fig. 14. Page 92.

Trip Pulleys.
Used on the Porter Reversible and Swivel Carriers. They lock in carrier and hold the load independent of carrier. Price of C. J. trip pulleys for Swivel Carrier, each 75 60
Price of C. N. trip pulleys for Reversible Carrier, each . . . . . .75 .60

Fig. 15. Page 92.

Hoisting Rope Pulley.
Any of the pulleys, Figs. 11, 12, or 13, can be attached to track as shown in cut.

Raw Hide Bushed Pulley.
Price, per doz. . . . . 10.00 .75

Fig. 16. Page 92.

Snatch Pulley Block.
Every person having a Hay Carrier should own one of these blocks. The device shortens the travel of the horse without reducing the elevating power. Price, per doz. . . . . 14.50 .90

Fig. 17. Page 92.

Sling Pulleys.
These pulleys fit all of our carriers and by having a pair either fork or slings can be used. They are self-locking and spread apart to hook in ends of sling. Price, per pair 3.00 2 40

Fig. 18. Page 92.

Centre Trip. Hay Sling.
This is made as shown, with four spreaders. It is tripped on bottom of load by means of trip rope, the sling separating into two parts, letting the hay drop out between them. The hay unrolls when discharged and spreads out in the mow as wide as length of sling and in the same shape as it lay on the load. We advocate the use of three of these slings to a wagon.
Price, per sling 3 00 2.40

Fig. 19. Page 91.

Steel Grapples.
Very convenient for attaching pulleys where floor hooks cannot be used. Price, per doz. . 8.15 .50

Fig. 20. Page 91.

Swivel Rope Hitch.
One of these should be used at the end of hoisting rope. By its use the rope can be instantly released from whiffletree and it is impossible for hoisting rope to become twisted when the hitch is used. Price, per doz. . . 3.90 30

Fig. 21. Page 91.

Acme Grapple Forks.
Four Tine. Price, each 7.50 6 00
Six Tine. " " 9.00 7 20

Fig. 22. Page 90.

Automatic Grapple Forks.
Opens nearly one foot wider than any other fork, giving more capacity. Returns to load closed. Tines made of high carbon spring steel, nicely sharpened and polished.
Four Tine. Price, each 7.00 5 50
Six Tine. " " 8.50 6.75

Fig. 23. Page 90.

Double Harpoon Forks.
Regular 25-inch tines. Price, each . . . 1 90 1.50
Extra long, 31-inch tines. " " . . 2.25 1.75

Single Harpoon Forks.
Genuine Nellis. Price each 3.40 2.70
Walker Pattern. " " . . . 2.65 2 10

Snatch Block Seat.
Not illustrated. Used for the floor pulleys.
Price, per doz. . . . . 8 00 .60

RONEY HAY FORK RETURNER.

The returner pulls back the carrier and fork after the hay has been dropped, when the rope has been unhooked from the evener, saving not only the hard work of pulling back the carrier, by the trip rope, but also the time that is usually lost waiting for the team to return, and the team waiting for the man on the load to stick the fork. By the use of the returner the man on the load always has the fork loaded and ready to go as soon as the team returns.

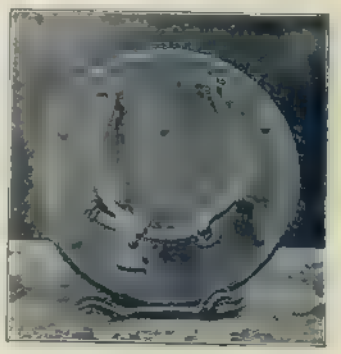
The fork can be tripped at any point desired. No lost time. Will work in any barn, no matter what size or shape it may be, whether the hay be outside or inside, or whether one track or two; has been thoroughly tested, and guaranteed to do the work.

It is easily put in place, very simple in construction, will never wear out, a great time and labor saver. Will save half the time and hard work of unloading a load of hay, save wearing out the hands. Any boy who can stick a fork can unload.

Mfrs. price, each . . $12.00 Our net price . . $10.00

MARSH OR MEADOW SHOES.

Randall's Improved Ratchet Marsh Shoe will fit any horse if properly adjusted. If the shoe does not fit the horse, take out one of the staples at the heel of the shoe, and widen or narrow, as the case may require.

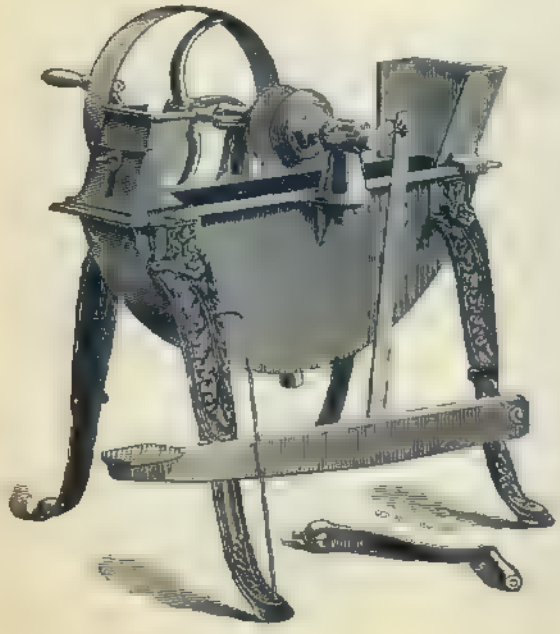


Randall's Improved.

Latest Improved Adjustable . . Mfrs. price, per set, $5.00. Our net price, $4.00.

Dodge Patent.

Improved Adjustment . . . Mfrs. price, per set, $5.00. Our net price, $4.00



IRON GRINDSTONE FRAME.

With Water Guard and Adjustable Tool Rest.

For use in factories, machine shops, etc., where a grindstone is in constant use, the iron frame is far superior to the old style wooden one, taking up much less room, besides being stronger and neater.

This frame will take a stone 30 inches in diameter with a 4 inch face. If a stone is ordered with this frame please state the size wanted, also the purpose which the stone is to be used for.

This will enable us to select a best quality Nova Scotia stone of a proper grit for the required work. For prices of plain Nova Scotia stones see page 93.

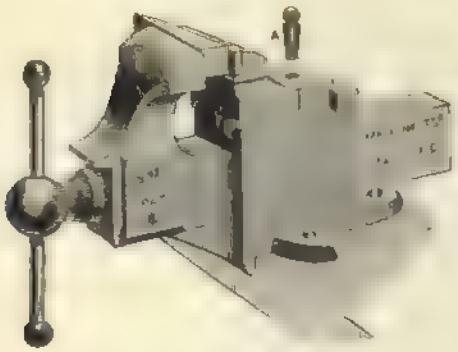
Grindstone frame, with pulley and treadle attachment . . . . . Our net price, $15.00
Grindstone frame, with pulley only . . " " 13.50
Grindstone frame, with treadle attachment only . . . . . " " 13.50

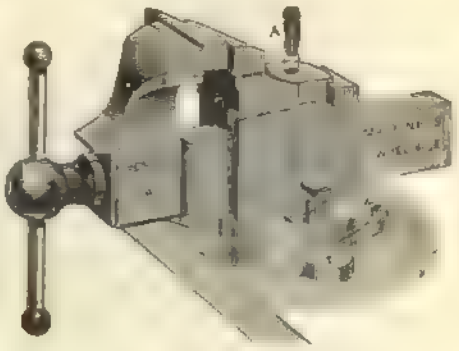
Pulley has removeable handle attached as shown in cut.

Prentiss Bench Vises

IRON WORKERS

Solid Steel Faced Jaws





Swivel Jaw, Stationary Bottom

No.	Jaws	Opens	Weight	Each
2	—3½ in.	4¾ in.	28 lbs	$10 50
2½	—4 in.	5¼ in.	41 lbs	13.50
3	—4½ in.	6 in.	54 lbs	15.75
4	—5¼ in.	8 in.	96 lbs	25.50
5	—6 in.	9 in.	146 lbs	36 00

Swivel Jaw, Swivel Bottom

No.	Jaws	Opens	Weight	Each
18	—2⅝ in.	3½ in.	17 lbs	$10 15
19	—3½ in.	4¾ in.	32 lbs	12.75
19½	—4 in.	5¼ in.	46 lbs	15 75
20	—4½ in.	6 in.	65 lbs	18 75
21	5¼ in.	8 in.	109 lbs	28 50
22	6 in.	9 in.	168 lbs	40.50

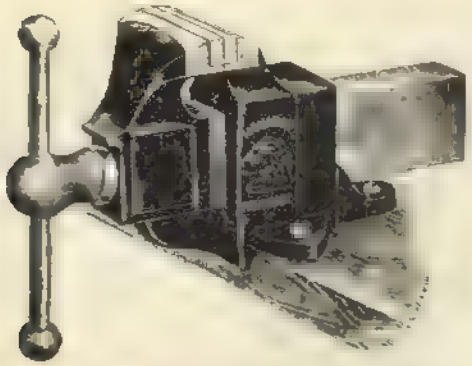
Extra Jaws for Prentiss Bench Vises

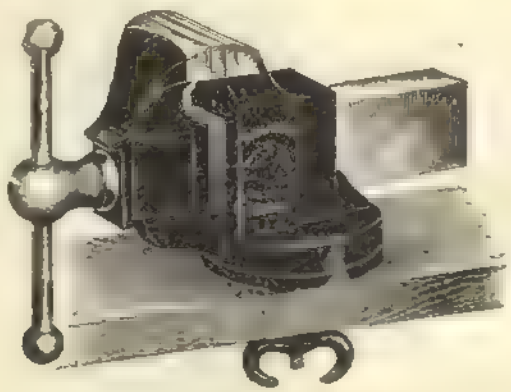
For Vise No.	2	2½	3	4	5	18	19	19½	20	21	22
Front Jaw, Each	$2 60	4 10	4.90	8 25	11 25	1 90	2 60	4 10	4 90	8 25	11 25
Back Jaw, Each	2 60	3.00	3.40	5.25	9.00	1.90	2.60	3.00	3.40	5.25	9.00

Monarch Bench Vises

MACHINISTS

Solid Steel Faced Jaws





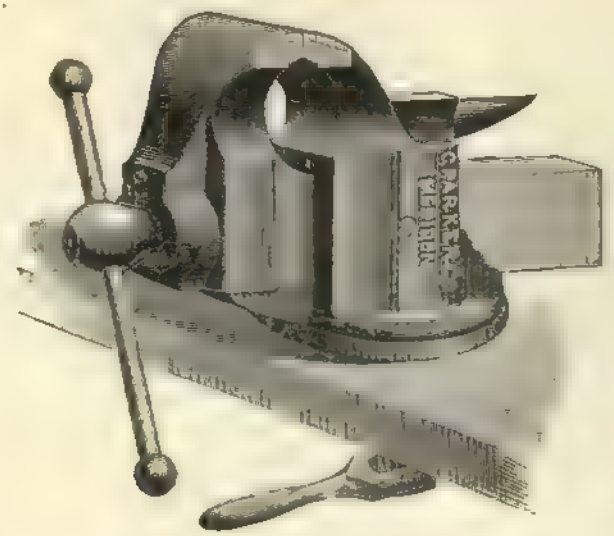
Parallel Jaws, Stationary Bottom

No.	Jaws	Opens	Weight	Each
213	3½ in.	4 in.	22 lbs	$6.00
215	4 in.	5½ in.	28 lbs	7.00
217	4½ in.	6 in.	42 lbs	8.50
219	5 in.	7 in.	52 lbs	10.00
221	5½ in.	8 in.	72 lbs	13 00
223	—6 in.	9 in.	100 lbs	18 50

Parallel Jaws, Swivel Bottom

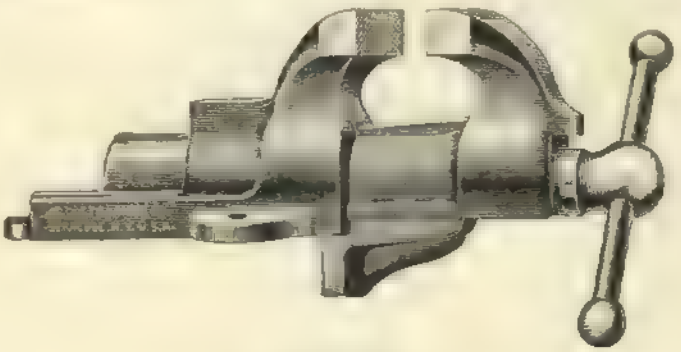
No.	Jaws	Opens	Weight	Each
214	—3½ in.	4 in.	28 lbs	$7 50
216	—4 in.	5½ in.	36 lbs	8.75
218	—4½ in.	6 in.	52 lbs	10.50
220	—5 in.	7 in.	64 lbs	12.50

Bench Vises



Parkers Improved Swivel
Semi-Steel, Cast Steel Anvil, Steel Faces Milled and Fitted to Jaws

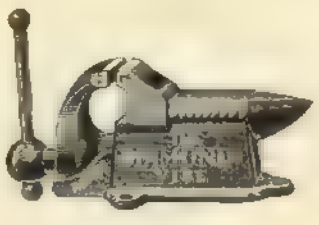
No.		Each
21P	—3⅛ in. Jaw, Opens 4¼ in., Weight 23 lbs	$7 00



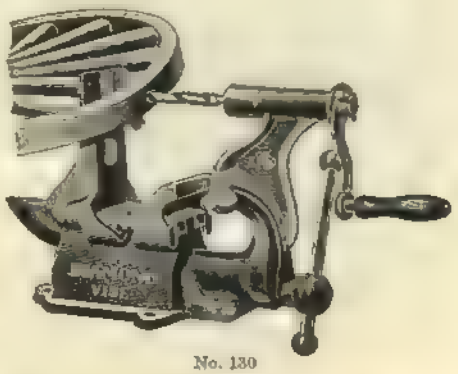
Oval Slide
Stationary Bottom, Steel Faced Jaws

No.	Jaws	Opens	Weight	Each	No.	Jaws	Opens	Weight	Each
00	—2 in.	3 in.	8 lbs	$2.90	**1**	—3 in.	4½ in.	13 lbs	$3.60
0	—2½ in.	3½ in.	9 lbs	3.00	**2**	—3½ in.	5⅜ in.	22 lbs	4.75

DIAMOND ANVIL AND VISE



No. 120



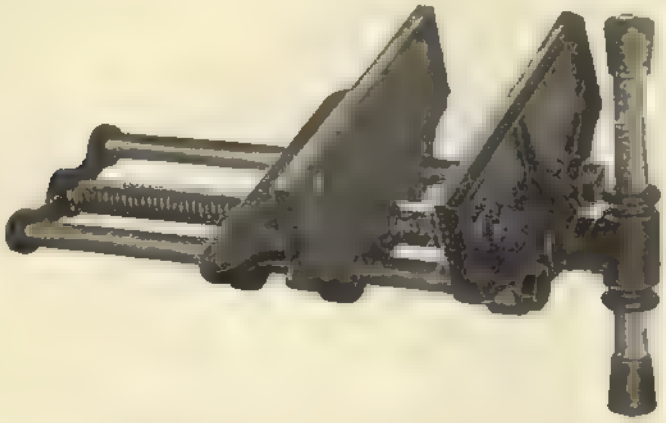
No. 130

Will hold Pipe up to 2 in., Face 3×7 in. not including Horn), Chilled, Ground and Polished, by moving the Jaw back to the last notch, the Jaw will open 12 inches

No.		Each	No.		Each
120	—Without Drilling Attachment, Weight 38 lbs	$6 00	**130**	—With Drilling Attachment, Weight 51 lbs	$8 00

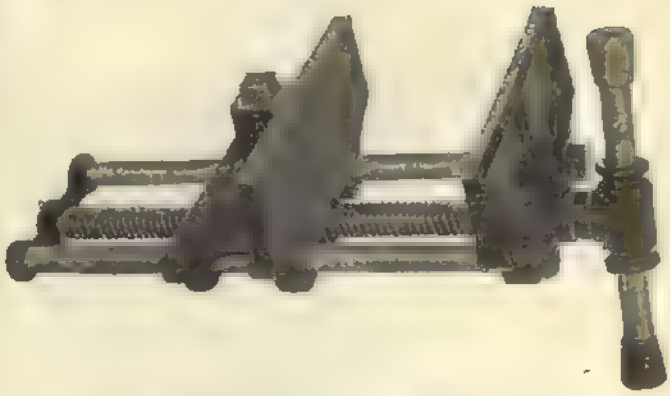
Toles Woodworkers Vises

RAPID ACTING



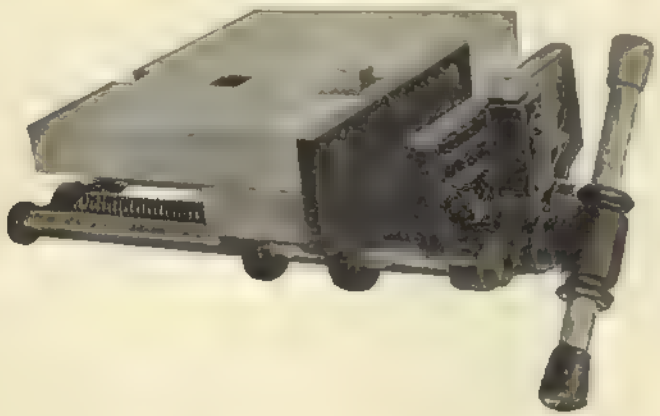
Length of Jaws 10 in., Depth of Jaws 4 in.

No.	Jaws Open	Weight	Each
20	12 in.	36 lbs	$6.50
20	16 in.	38 lbs	7.50



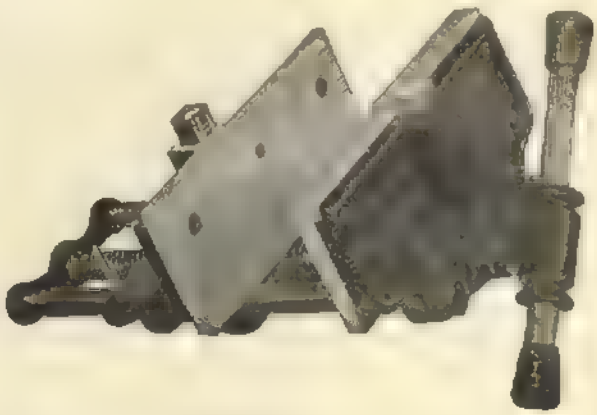
Length of Jaws 10 in., Depth of Jaws 4 in.
Brass Bench Stop 1 in. Square in Back Jaw

No.	Jaws Open	Weight	Each
25	12 in.	38 lbs.	$7.00
25	16 in.	40 lbs.	8.00



Length of Jaws 10 in., Depth of Jaws 4 in.
With Bench Stop and Front Jaw Dog

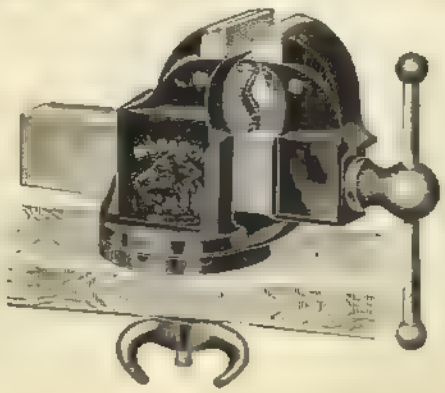
No.	Jaws Open	Weight	Each
40	12 in.	39 lbs.	$7.50



Maple Faced, with Front Jaw Dog and Bench Stop
Length of Jaws 10 in., Depth of Jaws 4½ in.

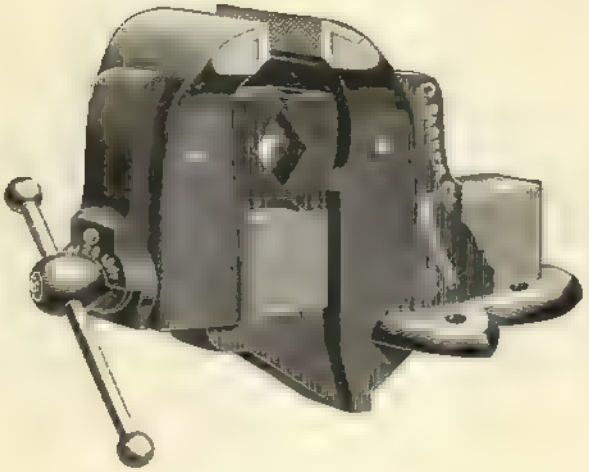
No.	Jaws Open	Weight	Each
65	12 in. (less Facing)	41 lbs.	$8.00

Monarch Combination Pipe Vises



No.	Holds Pipe	Jaws	Weight	Each
401	⅛ to 2½ in.	3½ in.	44 lbs.	$16.00
402	⅛ to 3 in.	4½ in.	65 lbs.	20.00
403	⅛ to 4 in.	5 in.	110 lbs.	$28.00

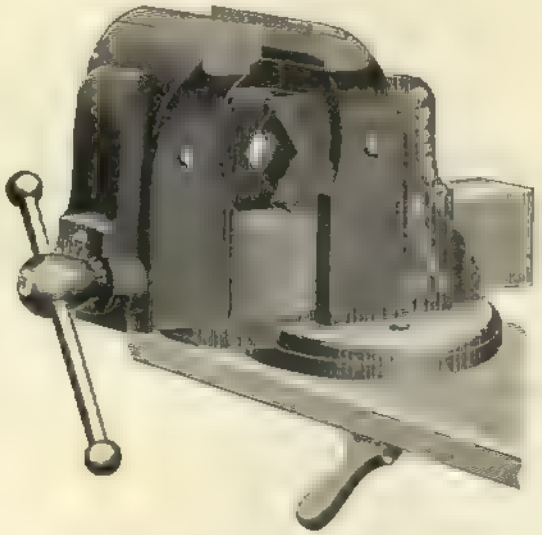
Parker Combination Pipe Vises



Stationary Bottom

Steel Faces Milled and Fitted to Jaws

No.	Holds Pipe	Jaws	Weight	Each
88½	Up to 2 in.	4¾ in.	94 lbs.	$28 00
89½	Up to 3 in.	5⅝ in.	141 lbs.	35 00

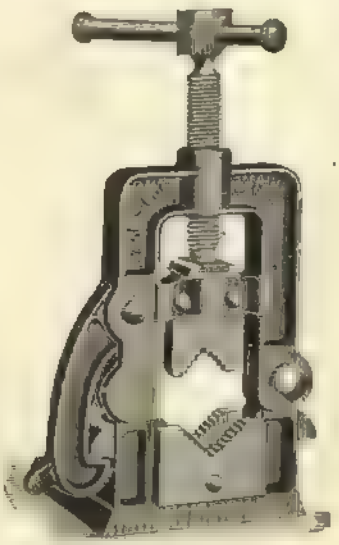


Swivel Bottom

Steel Faces Milled and Fitted to Jaws

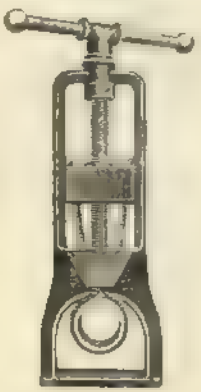
No.	Holds Pipe	Jaws	Weight	Each
87	—Up to 2 in.	3⅝ in.	41 lbs.	$16.00
88	—Up to 3 in.	4⅛ in.	59 lbs.	20 00

Armstrong Pipe Vises



No.	Takes Pipe	Weight	Each
0	⅛ to 2½ in.	11 lbs.	$8 00
1	⅛ to 2½ in.	16 lbs.	10 00
2	½ to 4½ in.	30 lbs.	20.00

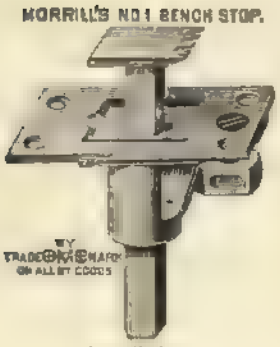
Strap Pipe Vise



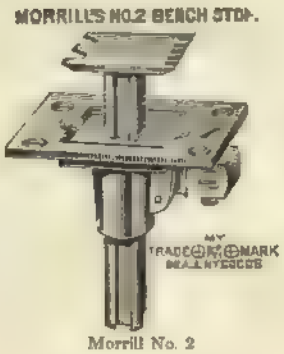
For holding all kinds of Nickel Plated and Polished Pipe and Tubing without marring same. There are no bushings to lose and no time is required for changing to different sizes.

No.	Vises, Each	Straps, Each
51—Capacity ⅛ to 2 in.	$4.00	0.75

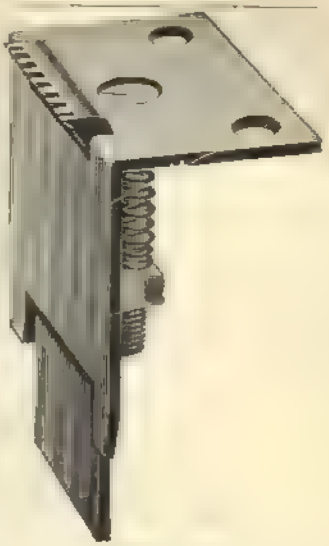
Bench Stops



Morrill No. 1



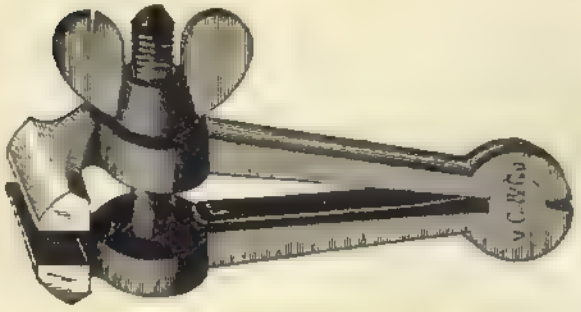
Morrill No. 2


Wilcox No. 187

No.		Per Doz.
1	—Morrills, Reversible, Malleable Iron Body, Steel Spindle	$10 00
2	Morrills, Improved Reversible Malleable Iron Body, Steel Spindle	12 00
187	—Wilcox, All Steel, Positive Adjustment	6 00

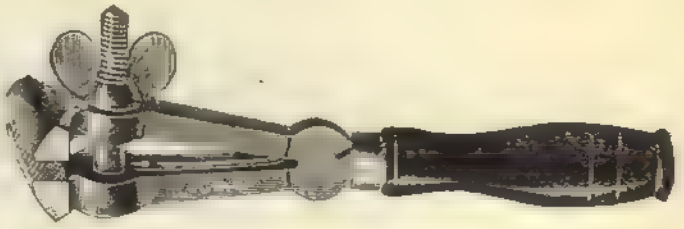
One-Half Doz. in a Box

Hand Vises



No. 658
Bright Steel Jaws

Length, Inches	4	5	6
Per Doz.	$6.00	8 60	12.00



No. 663—Handled
Extra Quality Cast Steel, Polished Jaws

Length, Inches	$4\frac{1}{2}$
Per Doz.	$12.50

Hardened Steel Jaws, Nickel Plated. The Octagon Handle can be Clamped in a Vise

No.		Per Doz.
50	—Holds $\frac{3}{16}$ in. and Smaller	$18.00

One-Twelfth Doz. in a Box

Alford Vise and Tools
Steel Screws and Cross Bars, Cocobola Handle. Contains Tools as shown

No.		Per Doz.
1	—1¼ in. Jaws, Opens 1⅛ in. Length 7 in.	$42.00

One-Half Doz. in a Box

Pin Vises

Goodell

No.		Each
104	Three Jaw Chuck; Holds 0 to 5/32 in.. Nickel Plated. Polished Hardwood Handle.	$1 50

Starretts

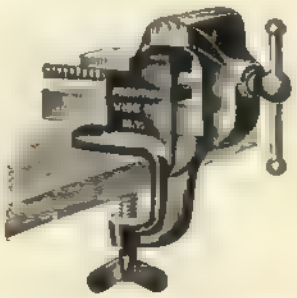
Hardened Steel Jaws; Hole runs through full length of Handle

No.		Per Doz.
5	Fluted Ebony Handle Hardened Steel Chuck; Holds 1/16 in and Smaller	$3 50

No.		Each
162A	—Holds .0 to .040 in	$0.55
162B	—Holds .030 to .062 in	.55
162C	—Holds .050 to .125 in	.55
162D	—Holds .115 to .187 in.	.75

Bench Vises

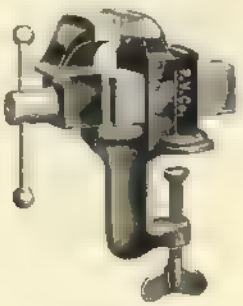
SHEPARD



Wrought Steel Sliding Bars, Screws and Levers, Hardened Jaws and Checked

No.		Each
152	—Jaws 1½ in., Opens 1½ in., Weight 1½ lbs	$0 45
163	Jaws 1¾ in., Opens 1¾ in., Weight 2½ lbs	$0 90

PRENTISS STAR



Best Materials
Fine Finish
Jaws Milled and Cut

Clamp

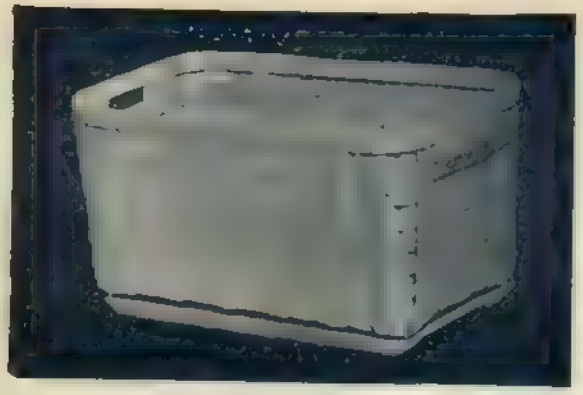
No.	Width Jaw	Opens	Weight	Each
800	1½ in.	1¼ in.	1½ lbs	$1.60
801	1¾ in.	1½ in.	2¾ lbs	2.25
802	2 in.	2 in.	6 lbs	3 50

Stationary

No.	Width Jaw	Opens	Weight	Each
805	2½ in.	2¾ in.	9½ lbs	$4.75
807	3 in.	4½ in.	15 lbs	5.75

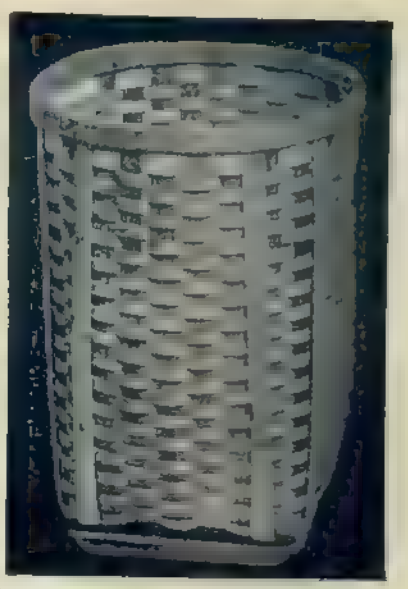
BASKETS.

Laundry.



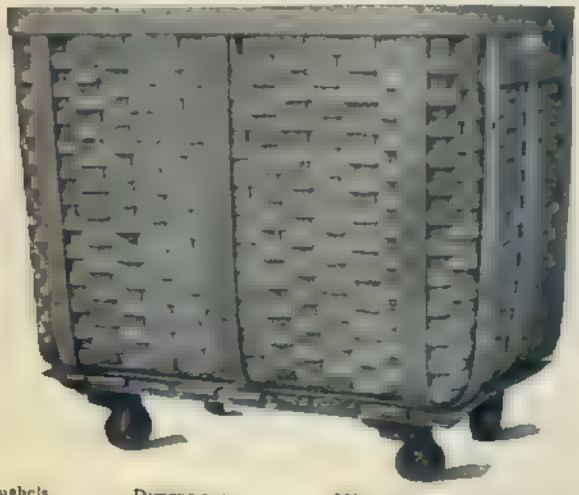
Bushels.	Dimensions.	Mfrs. price.	Our net price.
2	26 x 19 x 12 in.	Per doz., $18.40	Each, $1.50
3	30 x 20 x 13 "	" 22.40	" 1.75
4	30 x 20 x 17 "	" 26.40	" 2.00
5	30 x 20 x 19 "	" 30.40	" 2.25
6	33 x 22 x 20 "	" 35.20	" 2.75
7	33 x 22 x 23 "	" 40.00	" 3.25
8	33 x 22 x 25 "	" 44.80	" 3.50
10	36 x 25 x 25 "	" 49.00	" 4.00
Covers furnished		Per basket, 1.00	" .90
Trucks "		" 1.00	" .90

Mill.



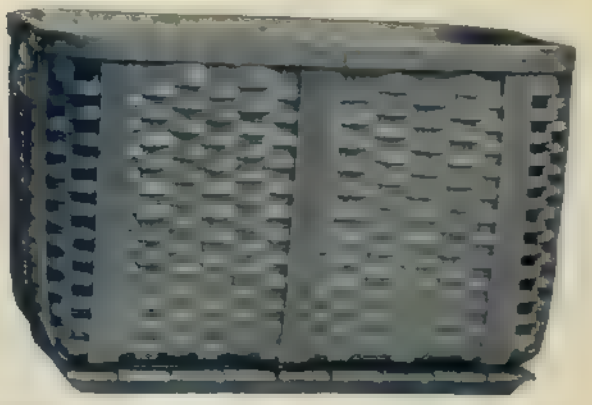
Bushels.	Diameter.	Depth.	Mfrs. price.	Our net price.
1	14 in.	14 in.	Per doz., $18.00	Each, $1.75
1½	18 "	15 "	" 18.00	" 1.40
2	20 "	17 "	" 21.60	" 1.75
2½	22 "	16 "	" 22.80	" 1.85
3	22 "	19 "	" 24.00	" 2.00
4	24 "	24 "	" 32.40	" 2.50
5	24 "	25 "	" 39.60	" 3.00
6	24 "	30 "	" 43.20	" 3.25
8	28 "	30 "	" 60.80	" 4.50

Oblong Mill, with Castors.



Bushels.	Dimensions.	Mfrs. price.	Our net price.
1	20 x 11 x 12 in.	Per doz., $40.00	Each, $3.25
1½	23 x 13 x 12 "	" 42.00	" 3.50
2	25 x 16 x 12 "	" 45.60	" 3.75
3	30 x 20 x 13 "	" 48.00	" 4.00
4	30 x 20 x 17 "	" 56.60	" 4.25
5	30 x 20 x 19 "	" 63.60	" 4.75
6	33 x 22 x 20 "	" 67.20	" 5.00
7	33 x 22 x 23 "	" 76.80	" 5.50
8	33 x 22 x 25 "	" 84.80	" 6.00
10	36 x 25 x 25 "	" 104.00	" 7.25
12	36 x 25 x 30 "	" 123.60	" 8.75

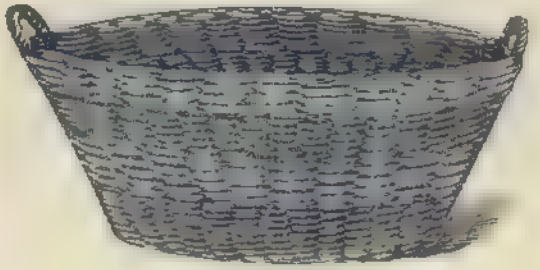
Oblong Mill.



Bushels	Dimensions.	Mfrs. price.	Our net price.
1	20 x 11 x 12 in.	Per doz., $10.00	Each, $1.25
1½	23 x 13 x 12 "	" 18.00	" 1.40
2	25 x 16 x 12 "	" 21.60	" 1.75
3	30 x 20 x 13 "	" 24.00	" 2.00
4	30 x 20 x 17 "	" 32.40	" 2.50
5	30 x 20 x 19 "	" 39.60	" 3.00
6	33 x 22 x 20 "	" 43.20	" 3.25
7	33 x 22 x 23 "	" 52.80	" 4.00
8	33 x 22 x 25 "	" 60.80	" 4.50
10	36 x 25 x 25 "	" 80.00	" 6.00
12	36 x 25 x 30 "	" 99.60	" 7.25

WOODENWARE.

WILLOW AND RATTAN CLOTHES BASKETS.

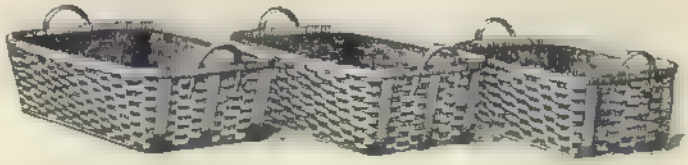


Oval Willow.

Mfrs. price, per doz.	Small, $8.60	Medium, $10.00	Large, $11.00	Ex. large, $14.00
Our net price, each	" .65	" .75	" .85	" 1.00

Clothes Baskets packed ½ doz. in bundle.

ASH CLOTHES BASKETS.



No. 1 No. 2 No. 3

Oblong.

Mfrs. price, per doz.	No. 1 33 x 22 x 12 in., $17.00	No. 2. 30 x 20 x 10 in., $14.00	No. 3. 26 x 18 x 10 in., $11.00
Our net price, each	" 1.25	" 1.00	" .75

Packed ½ doz. in bundle.

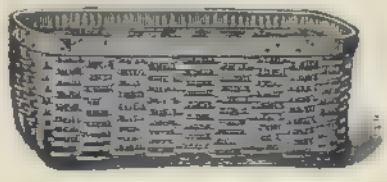
Round.

Mfrs. price, per doz.	Common splint, $6.00	Best splint, $7.20	
Our net price, each	" " .35	" " .40	

Packed ½ doz. in bundle.

BAMBOO BASKETS.

Market Baskets, Block, and Balls, Strapped.



No. 0.	Dimensions,	25 x 14½ x 9 in.	Mfrs. price, per doz.,	$8.00	Our net price, each, $0.50
" 1.	"	22 x 13 x 7 "	" "	6.40	" " .45
" 2.	"	19½ x 11½ x 7 "	" "	5.20	" " .35
" 3.	"	18 x 10 x 6½ "	" "	5.60	" " .50

ASH BASKETS.

Market Baskets, Bails and Strapped.

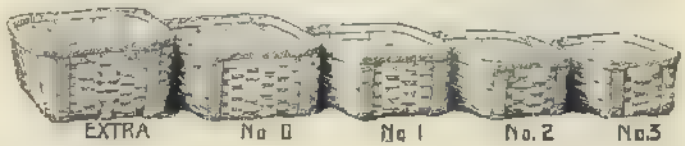
No. 0.	Dimensions, 25x16x7½ in.	Mfrs. price, per doz., $8.00	Our net price, each,	$0.50
" 1.	" 23x13x6½ "	" " 7.40	" "	.45
" 2	" 21x12½x6 "	" " 6.20	" "	.35
" 3.	" 18x11x5½ "	" " 5.60	" "	.30

Not Strapped.

No. 0.	Dimensions. 25x16x7½ in.	Mfrs. price, per doz , $7.40	Our net price, each,	$0.45
" 1.	" 23x13x6½ "	" " 6.80	" "	.40
" 2.	" 21x12½x6 "	" " 5.60	" "	.30
" 3.	" 18x11x5½ "	" " 5.00	" "	.25

Packed ½ doz. in bundle.

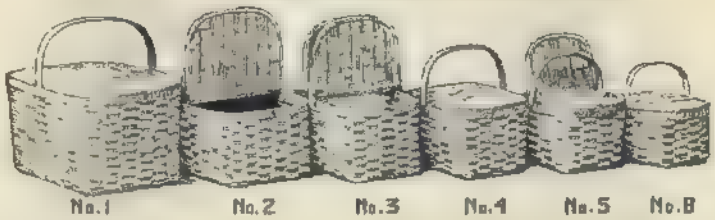
Market Baskets, Hole Handle, Strapped.



No. 0.	Dimensions, 25x16x7½ in.	Mfrs. price, per doz., $8.00	Our net price, each,	$0.50
" 1.	" 23x13x6½ "	" " 7.45	" "	.45
" 2	" 21x12½x6 "	" " 6.25	" "	.35
" 3.	" 18x11x5½ "	" " 5.60	" "	.30

Packed ½ doz. in bundle

Market Covered Baskets, Not Strapped.



No. 1.	Mfrs. price, per doz , $11.00	Our net price, each,	$0.75	No. 4.	Mfrs. price, per doz., $7.40	Our net price, each,	$0.45
" 2.	" " 10.00	" "	.65	" 5.	" " 6.85	" "	.40
" 3.	" " 8.60	" "	.55	" 6.	" " 6.20	" "	.35

Packed ½ doz. in bundle.

Diamond Market Baskets.

Mfrs. price, per doz.	$1.50
Our net price, each	.10

Packed ½ doz. in bundle.

Spruce Covered Picnic Basket.

Nest of 3.	Mfrs. price, per doz., $7.40,	Our net price, nest,	$0.45		
" 5.	" " 15.20	" "	1.10		
No. 1.	" " 1.30	" each,	.10		
" 2.	" " 2.00	" "	.15		
" 3.	" " 2.60	" "	.20		
" 4.	" " 5.65	" "	.30		
" 5.	" " 6.20	" "	.35		

Packed ½ doz. in bundle.

Cedar Covered Baskets.

8 in.	Mfrs. price, per doz., $5.00	Our net price, each,	$0.25		
9 "	" " 5.65	" "	.30		
10 "	" " 6.20	" "	.35		
12 "	" " 6.85	" "	.40		
14 "	" " 7.75	" "	.50		
16 "	" " 9.25	" "	.60		
18 "	" " 11.25	" "	.75		

Packed ½ doz. in bundle.

OAK BASKETS.

Nailed Rim.

4 Bushel

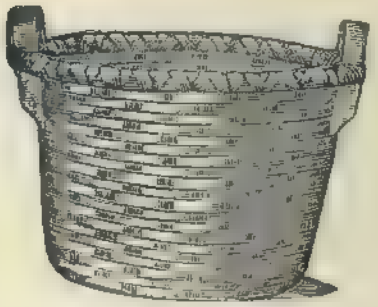
3 Bushel

No.	1.	4	bushels, strapped	Mfrs. price, per doz., $29.00	Our net price, each, $2.25
"	1.	3	" "	" " 23.00	" " 1.75
"	1.	2	" "	" " 14.00	" " 1.00
"	2.	2	" "	" " 12.20	" " .85
"	1.	1½	" "	" " 12.20	" " .85
"	2.	1½	" "	" " 11.00	" " .75
"	1.	1	" "	" " 9.20	" " .60
"	2.	1	" "	" " 8.00	" " .50
"	1.	½	" stiff bail	" " 6.30	" " .35
"	2.	½	" "	" " 5.00	" " .30
"	1.	½	" drop bail	" " 6.30	" " .35
"	2.	½	" "	" " 5.00	" " .30

Packed ½ doz. in bundle.

Bound Rim.

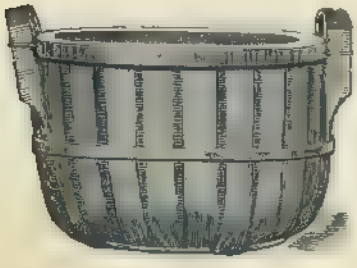
½ bushel.



1 bushel.

No.	1.	½	bushel, stiff bail	Mfrs. price, per doz., $6.20	Our net price, each, $0.35
"	2.	½	" "	" " 8.00	" " .50
"	1.	1	"	" " 8.00	" " .50
Shepard,			"	" " 10.40	" " .70
Shepard, 2 bushel, extra heavy, strapped				" " 18.00	" " 1.35

STAVE BASKETS.



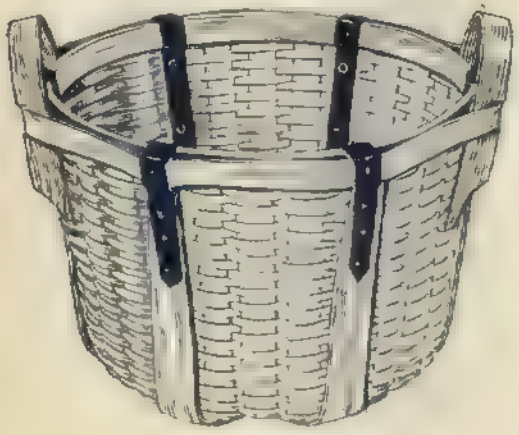
1 bushel, nailed rim . . . . . Mfrs. price, per doz., $5.00 Our net price, each, $0.25

Packed ⅛ doz. in bundle.

COAL BASKETS.

Standard.

Standard coal baskets, strapped . . . . . Mfrs. price, per doz., $10.00 Our net price, each, $0.65
Packed ¼ doz. in bundle.



12 in. Superior.

12 in. bound rim.

		Mfrs. price, per doz.,	Our net price, each,
9 in.	Ice or coal, strapped	$8 00	$0
10 "	Common, strapped	9 20	1
12 "	" "	12 80	1
13 "	Extra "	16 50	2
12 "	Superior, heavy riveted and strapped	22.00	1 15
1½ bu.	" " "	28.00	1 50
2 "	" " "		

WOOD BASKETS.

No. 318. Willow Wood Basket.

			Mfrs. price, per doz.,	Our net price, each
No. 1.	Cedar		$12.00	$0 75
" 318.	Willow		21.00	1
" 325.	"		24 00	1 25
" 330.	Rattan		24.00	1 25
" 315.	"		27.00	1

Packed ¼ doz. in bundle.

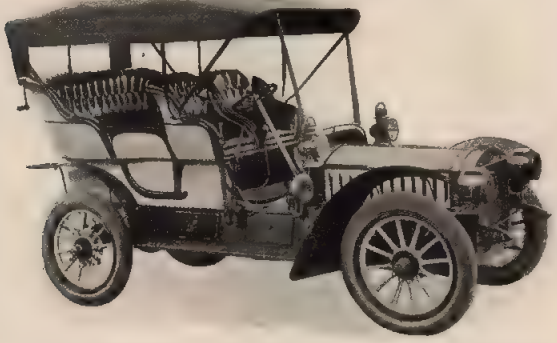
Standard 1 qt. . . . . Mfrs. price, per 1000, $4.00 Our net price, per 1000, $4.00; each, $0.05
Packed 1000 in a crate.

BERRY BASKETS.

The Austin 1906 Touring Car

HUGH DOLNAR

The Austin Automobile Company, Grand Rapids, Michigan, U. S. A., had its first car on the road in December, 1902, and developed a large and very original car, high power and elegant finish, for the season of 1905, which gave the greatest possible satisfaction to its purchasers. The Austin, 1905, was quite fully described in our January, 1905, number, and it will be of much interest to the designer and to the trade at large, to compare the 1905 Austin car, bristling with original features at every point, with the following illustrated story of the Austin 1906 touring car, here told in print for the first time, because this 1906 Austin, while retaining the high-power motor and the extremely substantial rear axle construction of the 1905 model unchanged, and still showing much originality in details, is yet a manifest approach to common practice in some of its more important features. In other directions, however, entirely new expedients are adopted, making the "Austin" one of the most original of 1906 American motor-car constructions. The specifications of the Austin 1906 touring car are: wheel base 109 ins., gauge 56 ins., wheels 36 ins., tires 4½ ins., motor, 4 cylinders 4 cycle, water cooled 5½ ins. bore by 5 ins., stroke, nominal 50 H. P. sliding gear, selective type, four speeds forward and a reverse. Weight 2800 lbs., price $4,000.00, including a full extension surrey top, storm curtains and apron, 5 lamps, 2 acetylene and 3 oil, two complete and wholly separated ignition systems, one high tension magneto, and the other a dry or storage battery with coil and vibrator, separate spark plugs for each system and separate wiring, so that both can be used at once or either ignition system can be worked alone while the other is wholly removed from the car, and the new Austin spring controllers, which do not resist spring closing but retard spring recovery to the precise degree best adapted to the car and load, this Austin controller being delicately screw adjusted. The Austin spring controller gives an entirely new and most superior effect, and is being applied by the Austin Company to other makes of cars at $100.00 for the set of four. In addition, the $4,000.00 price includes a complete set of tools, thus making the car as well equipped for extended touring on all kinds of bad roads as any other motor-vehicle yet offered.



The Austin 1906 touring car, wheel base 109 ins., gauge 56 ins., wheels 36 ins., tires 4½ ins., motor, 4 cylinders, 4 cycle, water-cooled, 5½ ins. bore x 5 ins. stroke, nominal 50 H. P., sliding gear, selective type, four speeds forward and a reverse. Weight 2800 lbs., price $4000, with two lamps and two separate ignition systems.

NOTABLE FEATURES

The only change from the 1905 Austin sliding gear is to make the low gear and reverse same rate, the original gear being the lower on the reverse, and a change in the means for handling the gears, which eliminates all side movements of the levers, one lever having 3 vertical positions, and an added reversing lever rocking crosswise of the car. This does away with the H slot, and avoids the possibility of wrong gear selection, as the lever normally returns to neutral as soon as any gear disengagement is effected, all as is shown, later, in detail. The result obtained is the same as with the H-slot and sidewise moved lever, but this Austin change permits the use of much the better intermediate connections, and the whole assemblage of interdependent Austin actions is very simple, neat and reliable.

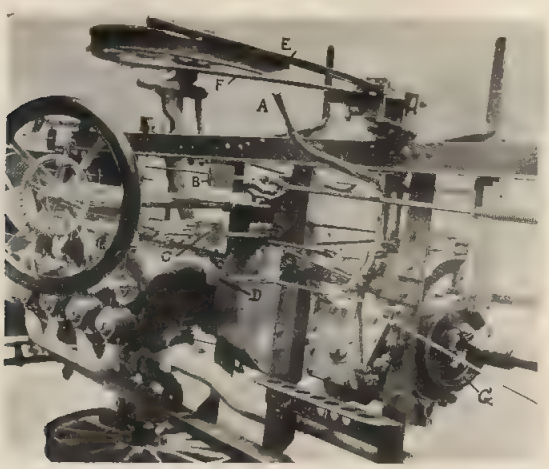
The Austin clutch engagement is by the friction of four radial surfaces, one on the

fly wheel, one on each side of the driven member, and one on the sliding member, the sliding member being normally spring-pressed to pinch the driven member between the sliding member and the fly wheel. Multiple-disk clutch engagement is commonly effected by a central coiled spring pressing the middle of a disk which bears against the true clutch disks or plates. This arrangement makes the spring pressure the more effective at the middle, and the less effective at the outer edges of the disks; also, the more disks there are in a multiple disk clutch the more engagement effect is gained by a given spring pressure, and, again, the greater the number of disks used the more oil friction there is to turn the driven clutch member assemblage when the clutch is disengaged. The smallest number of radial faces that can be forced into frictional engagement is two, one on the driving member and one on the driven member, and as many as 21 friction disks are sometimes placed in a clutch of this form. Austin uses three members, one stationary and two moving axially, and introduces radial levers fulcrumed in an internal groove in the fly wheel rim and having their inner ends pressed into normal clutch engagement position by a central spring. This brings the spring pressure multiplied by the leverage, to the outer circumference of the engaging surfaces, where it is most effective, and also makes disengagement more complete than with more disks, as there is less surface to be affected by lubrication drag.

The front axle is an I-section, with forked ends. The rear axle sleeve is two steel castings, faced and bolted together at the middle, with no hand hole or capped opening to give access to the bevel casing interior. The rear wheels are keyed directly to the rear axles.

NO STRUTS.

No struts are used, and no torsion rod is



Austin chassis, showing the [illegible] of the clutch and transmission. A, cross-lever which engages the [illegible] by means of the accelerating linkage which makes the Austin control convenient and [illegible] in action, depends on the crossarms, one of [illegible] lever A. B, is the rear-hub brake-shoe [illegible] and C, the [illegible] rear hub brake. G, clutch disengaging [illegible] [illegible] after the clutch is disengaged by G [illegible] [illegible] movement of [illegible] this system so that the gear change can be made. [illegible] being built to speed at inside ends to exert [illegible] with C in extreme forward position F [illegible] lever, to engage [illegible] speed gear. [illegible] moved the [illegible] of F [illegible] A [illegible] [illegible] against the [illegible] [illegible] A [illegible] F works either a [illegible] or a sleeve moved on [illegible] pocket the pressure contained in cannot be made clear without sectional [illegible]. The functions and [illegible] are correctly specified above. The speed change is a sliding gear [illegible] [illegible] Hess-Bright [illegible] rings, side shaft always engaged direct on high speed [illegible] [illegible] forward [illegible] a worm. G, emergency brake. D, muffler cut out

placed, the ¾ elliptic springs performing all the duties of these difficult installations which Austin holds as worse than superfluous, as it is impossible to place the springs, the struts and the torsion resistance between the rear axle casing and the chassis frame so that no member of this complicated aggregation will not injuriously affect the performance of one or more of the others. The extreme top members of the ¾ elliptics are of course fixed to the chassis frame, and the front ends of the lower spring members are jointed forward and are shackled at the rear ends. This leaves everything perfectly

free, and makes the springs alone transmit all propulsion effects to the chassis frame, which is precisely the function taken by the struts. The elimination of the torsion resistance member of course throws this work also on the rear springs, and also places a spring cushion between the teeth of the bevel pinion and gear. That is to say, the springs permit a slight rotation of the bevel gear against the springs before the full driving effect begins to turn the wheels on the road. No Austin car has ever broken a rear spring, which is convincing proof that Austin is not mistaken in his reasoning in this matter of struts and torsion resistance. It must be noted in this connection that the Austin is a large and high-powered car, and should therefore need struts and a special torsion resisting member as much as any car made. Hence the fact that, as before stated, no Austin car has ever broken a rear spring shows that the omitted struts and torsion resisting member really serve no useful purpose whatever, and that the function of the strut and torsion arm do not injuriously add to the work of the rear spring.

CHASSIS FRAME.

In the chassis frame Austin has made a notable departure from common practice, in adopting the most obvious method of making the rear of the frame wider than the front. The chassis frame is better with different widths, and the common practice has been to make this change in width by placing OG bends in the frame sides. A moment's consideration shows that this crook in a frame side transforms it from a girder into a cranked member, leading to the necessity of a strongly reinforced and costly construction to avoid the numerous breakages of the OG pressed steel frame side.

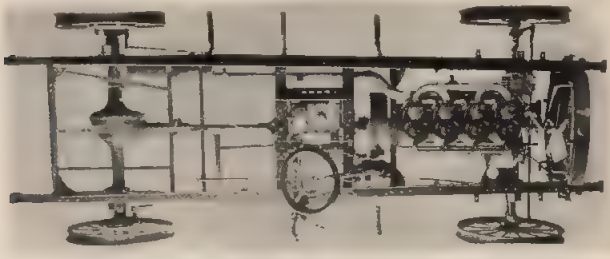
Austin simply makes his angle steel frame sides straight, drawing them in at the front. There is no loss whatever in departing from the parallelogram chassis frame, and there are many gains secured by Austin's expedient, which is so very obvious as to make former practice seem very raw indeed. The chassis frame side remains straight, and is of course merely a plain girder, with all the load resistance of its weight and material distribution unimpaired, although the frame has the desired difference in the widths of its ends.

The body sills are given a spread at the rear to correspond to that of the chassis frame, and the whole problem of the two-width chassis frame is solved in the simplest and best manner shown in any car.

The 1906 Austin front axle will be changed to an H-section integral steel forging, with forked ends. The stub axles are steel forgings, and the front wheels are on Timken bearings.

STEERING.

This is by a double thread screw on the lower end of the steering shaft, thread 1 in. pitch. This screw length is a little more than



Austin chassis plan. The cross-lever which engages the reverse is hidden by the steering wheel in this picture. The form of the rear cross member, fixed to the crank-box, is clearly shown here. The motor is supported by two forged steel cross members reaching across the under side of the chassis frame, the change gear box is fixed directly to two short longitudinal placed pieces of angle steel, carried on two chassis frame crate-girts. The Austin car has no sub-frame, and the grey-iron crank box is kept as narrow as will permit crank revolution inside.

the length of the nut which it engages, added to the travel of the nut, thus permitting the placing of ball bearings at each end of the thread to take the steering screw thrust, one of the ball-cups having a lengthwise adjustment to take up end-motion of the screw. The screw nut is integral with a rack which engages a spur-gear sector, integral with its journals. The steering shaft screw drives the nut and rack, which in turn drive the spur-gear sector, integral with the globe-end steering arm. A spur pinion and sector have much more bearing area than a worm and tangent screw, and the ball bearings at each end of the screw not only make the steering gear work easily, but by the screw threaded ball cup, pinching screw retained, take all endwise lost motion out of the steering shaft. The sector journal boxes are eccentric, are turned to keep the rack and sector in close mesh, and the whole steering action is in a dust-proof casing.

THE REAR AXLES.

This is two steel casting sleeves joined by boting the flanges of the enlarged inner ends together to form the gear casing. This is a very strong form of rear axle casing, ribbed against all stresses, and the whole structure can be easily and quickly taken out and separated at the middle to obtain access to the bevel gear and pinion. This axle casing has

been used in the Austin cars for three years, has never broken nor given the slightest trouble of any kind, and will not be changed at all in the 1906 Austin cars.

TORSION RESISTANCE.

Driving the bevel-gear by its pinion tends to turn the rear axle, and this turning impulse is resisted by some form of torsion resistance, either rigid or slightly flexible, usually a separate member known as the torsion rod or arm. The rear springs resist rear-axle casing rotation, and resist it in the most suitable manner, not rigidly, but with sufficient elasticity to avoid shock, and at the same time hold the rear axle casing as nearly in one position with respect to the chassis frame as is desirable. It is therefore plain that some weight of spring will be strong enough to not only perform the duties of both springs and struts, but may also afford the needful torsion resistance.

This is done in the Austin cars without adding enough metal to the springs to make them too stiff for easy riding. The Austin springs perform all the duties of springs, struts and torsion arm, and no Austin rear spring has ever broken, and the Austin cars are very easy riding

Austin rear axle, wheel, brake and rear springs. The axle casing and gear housing are a two-piece steel casting, bolted together in the middle. The ¾ elliptic spring fixing to the chassis frame as here clearly shown, also the application of the brake drum to the wheel spokes. All spring eye pins are carefully and well made in hardened steel bushes, and the springs have retaining bands applied as shown which is important.

THE SPRINGS.

These are all ¾ elliptics, all 2 in. wide, 45 in. long in front and 49 in. long in the rear, as they stand in the car. The front and rear springs are both pivoted forward and linked behind, and the rear springs have scroll heads. The Austin bevel-gear driven cars have all had springs of the form and three-fold functions described and have been free from troubles of any description. Both front and rear springs are perched in the middle of their lengths; the springs all have 7 leaves.

The chassis frame is of angle steel, 4 in. x 3 in. x 5-16 in., wide member vertical inside. The chassis frame is 39 in. wide in the rear and 36 in. wide in front, and the chassis frame sides are straight, thus giving them their full normal strength when placed as girders, instead of greatly reducing their load carrying capacity by forming OG curves in their sides, as is commonly done where the chassis frame is of different widths front and rear. With the chassis frame as described there is a wide flat under surface to take the brackets, pedestals and cross-members, and the body sills can be easily made straight, and placed the closer together in front, to fit the chassis frame. This form of chassis frame avoids all the reinforcing of the sides to recover the strength lost by the OG curve, and is very cheaply produced, and perfectly suitable in every way when done.

THE MOTOR

The motor is unchanged from the 1905 model, except a slight increase of compression. The intake valves are automatic, and triple, 3 valves, covering 3 ports 7-8 dia., being fitted to the separate intake cage of each cylinder. The exhaust valves are mechanically operated, of course, the ports being 2 in. diameter

The valve cams have riding rollers on the ends of long levers, pivotted to the inside of the crank-box, opposite the cam shaft, and the valve lifters rest on the roller rocker-arms, and so have a direct lift with no side movement.

The motor base is made only wide enough to take the cranks and rod-ends, is of grey iron, with aluminum hand hole covers. The rods are full marine type. The pistons have 4 rings, ¾ wide, two close to the top, one just above the pin, and the last one near the bottom of the piston. The piston pins are 1⅜ dia., hollow, steel, ground, and fixed to the rod end and turn in the pistons, which obtains the better pin lubrication.

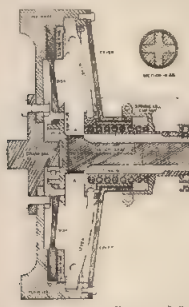
To support the motor on the chassis frame, the crank-box ends are finished and steel forged bar with wide ends for fixing under the chassis frame sides, is fixed to each end of the crank-box.

This construction avoids the inconvenience of handling due to the common form of crank-box with integral lugs reaching across the chassis frame. The widened ends of the steel forging cross-bars take two bolts through the bottom member of the chassis frame, and one hook-bolt, hooked over the wide inside chassis frame member. The grey iron motor base is made only wide enough to take the cranks and rods and house them, the forged steel lugs being fixed to the ends of this narrow grey iron engine base by 5 studs each, tapped into the base-ends, passed through holes in the forged lugs, and rivetted. This gives a small base, handy in finishing, and supports the heavy motor on steel forgings, not liable to break, reaching across the full width of the chassis frame.

THE CLUTCH

This is a single aluminum disk, fixed to a flanged hub carried on a ball bearing mounted on the rear end of the crank-shaft, outside of the integral crank shaft flange to which the fly wheel is bolted, the flange hub, steel, has four clutch jaws on its rear face, en-

gaging similar jaws integral with the short clutch shaft, alike at both ends, and engaging the change gear line shaft, see illustration of clutch. The single friction disk is pinched between the rear fly-wheel face and a sliding ring, pressed by the clutch spring through four levers, so as to bring the friction to the outer part of the disk, where it is most effective. This clutch is normally spring engaged, and is disengaged by a single pedal which also



Austin clutch. The out diameter of fly-wheel is 18 ins. The crank shaft is flanged, and has a short extension to rear, on which a ball-bearing is mounted which supports the steel disk hub. This disk-hub has solid clutch jaws cut in the right side, which engage similar clutch jaws cut in the left end of the clutch shaft, which, again, has the same solid clutch-jaws at its right end not shown, to engage the change gear line shaft. The said engaging jaws are so cut that no driving or slipping strain can be put on the bolts which connect the clutch-jaws to the disk hub. The clutch-jaws are shown disengaged in the sectional view. The clutch shaft is coaxial to the crank shaft and has a ring flange or collar screwed on the rear end, and a leather pad is used in the side to make the disk friction surface. The disk is of aluminum, and is fixed to the disk hub, which has solid clutch jaws as described. The grey iron sliding ring is fitted to slide inside the fly-wheel rim, and faced to make a friction surface to engage the disk. The sliding ring has four pairs of lugs, see at 40, between the arms of levers, fulcrumed at the rear rim interior groove, and each pair of lugs the sliding ring has. The outer ends are coupled by a pin in a ring groove in the spring-sleeve, all so that the spring lever is multiplied about twice as much as the sliding ring. The office of the spring of the clutch lever is to keep both levers to the contact of the sliding ring, and it is not clear why this member might not well have been integral with the spring sleeve. The aluminum cover, bolted to the fly-wheel rim, has a threaded hub to take the spring sleeve and spring adjusting capped nut, adjustment pinch-screw retained. The screw-adjusted 3-point ball-bearing which takes the clutch fork thrust, is mounted on the right end of the spring sleeve. This clutch must be lubricated as the engaging surfaces are metal to metal. The spring shown is of ⅝ round rod, as the spring thrust is multiplied by the levers, and the friction disk is no less than 18 ins. diameter, probably a spring mount of ¾ in. square rod would give an upright driving friction. Austin does not favor leather facing of clutch engaging faces, but in view of recent practice it would seem that leather faces applied to each side of the disk would enable this simple and powerful clutch to do its work without lubrication.

supplies the rear hubs ordinary breaks, and by the outside lever, which first disengages the clutch and then applies the emergency brake band to a brake drum 9 in. dia. x ⅞ in. face, fixed to the forward member of the forward universal joint.

BRAKES

The steel casting ordinary brake-drums are applied to the wheel spokes, see illustration. The steel internal shoes are fiber faced, and cam-rocker applied by the clutch pedal action.

The emergency brake is worked by the outside hand lever, which first disengages the clutch and then applies the shoes to the emergency brake drum. This is a very strong brake action, and is applied only when the car must be stopped as quickly as possible.

THE REVERSE.

The reversing pinion is dropped into engagement from above, by a mechanism which locks the pinion in engagement, and prevents any drawing in or pushing out of the reversing pinion in work.

Austin control. The outside lever applies an exterior ringed leather-lined steel shoe to the emergency brake drum fixed to the universal joint member, after disengaging the clutch. The inner lever works the gear shifts, except reversing and interlocks with the reversing. This lever works in a novel H-slot modification, always in one plane vertically, but in three horizontal planes. In its bottom position, pushing this lever forward gives the 1st speed and moving to rear gives the 2d speed. In high position this lever gives the 3d speed forward, and the 4th or high speed, direct drive. After each disengagement the gear change lever hopfully darns automatically, to mid position, neutral, lever vertical and in mid horizontal position, where it is spring retained vertically both up and down and is also locked sidewise, and cannot move front or rear without first lifting up or pushing down, and is ready to instantly make any gear change with one movement of the driver's hand which either presses the lever up or lifts it up. No movement of the gear change lever can be made until after the clutch is disengaged.

SPEED CHANGING

Silent and ready change gear engagement by the inexperienced driver depends on (a) the light weight of the driven assemblage made up of the driven clutch members and the propeller shaft, and (b) on the ease with which this assemblage turns in its bearings.

Perfect clutch disengagement is understood,

as any drag of the clutch makes a noisy and damaging gear engagement not only possible, but extremely probable.

To meet (b) Austin mounts the whole clutch driven propelling assemblage on Hess-Bright ball-bearings, and to meet (a) everything driven by the clutch up to the change gear is made as light as possible.

These weight reductions and the little friction of the Hess-Bright ball-bearings, combined with the ideal interlocking of the brake and gear-shift linkage, make it easy for an inexperienced driver to effect any gear engagement without rubbing the gear teeth or making any noise.

It is well known that the disk clutch should have as few disks as possible and do its work, and that clutch oiling is undesirable, both because of more certain complete disengagement. Austin transfers the multiplied spring thrust to the outer portion of the friction disk by introducing the four levers, and so makes a single disk of large diameter take the work of his powerful motor easily, and if a single disk clutch could be made efficient without oiling it would be the best form. Up to this time no clutch, metal to metal, has been worked dry, and no single disk leather-faced clutch has been tried, so far as the writer knows. It seems as if this powerful, large diameter Austin construction might be run dry if leather-faced, single disk as here shown.

The clutch is at present the most important single detail of motor driving transmission, and this Austin construction will receive close attention.

RADIATION.

Austin adheres to water jacketing before transferring the cylinder heat to the atmosphere. The pump is an eccentric revolving in a cylindrical casing which the eccentric thickness just fills, while the edge of the eccentric touches the cylinder wall and is ridden by a swinging abutment, all as often seen in rotary steam engine designs. This is a simple and effective pump for light service.

All users of automobiles are well aware of the faults of plain body springs, either full or half elliptics. On good pavement it is an easy matter to make a car easy riding. On a rough road it is extremely difficult to find springs soft and quick enough to work well where the roads are fairly smooth, and at the same time heavy enough to avoid spring closing when the wheels drop into a deep road depression. Again, if the springs are made wide and heavy, so as not to close under heavy shock, and are given great length so as to have elasticity enough to compensate promptly on fairly smooth roads, then these powerful and quick springs toss the car body in recovery, and make it difficult for passengers to retain their seats at high speed on a rough road. To meet these difficulties spring checks are fitted, in the form of friction producing elements linked to the car body and to the axle so as to turn on each other as the body and axle come together or go away from each other. These friction checks do avoid the tossing of the car-body, but they also rob the springs of delicacy of action, and make the springs slow in closing as well as in recovery, and so, while helping the passenger to stay in the car, they also make the car ride hard.

Austin's spring check is a novel arrangement, not here described because of patent matters, which strongly retards spring recovery, but does not hamper spring closing to an injurious extent, and which does not wear rapidly. This leaves the spring with all its normal sensitiveness in closing, and yet effectually resists the tossing of the car-body by rapid spring recovery. The Austin spring check is a very peculiar and highly ingenious affair, identically the same parts being made to produce varied effects by simply changing relative positions, so that the same spring check can be made to resist spring action either up or down, leaving the complementary action unchanged, or can be placed so as to slow the spring action in closing and recovery equally.

ON THE ROAD

A short run was made, Walter Austin driving, to show the action of the speed change interlocking linkage and that of the spring check.

The vertically moved speed change lever, the cross-movement reversing lever and the spring check all showed ideal performance when working on the road. Owing to the perfectly free clutch release and lightness of the clutch disk the sliding gear engagement was made with no noise, the springs were free to close and so carried the car easily, while the spring check wholly prevented body tossing.

In this run Austin put the car wheels into all the ruts and over all the bumps available, without making the car at all uncomfortable for its passengers, the spring checks retarding the spring recovery admirably, and at the same time not at all hindering the springs from delicate closing over small road-surface variations.

The Austin car has abundant power and speed, and with the Austin spring checks is extremely easy riding. The spring checks stop side-sway as well as body tossing, and add greatly to the comfort of the passengers both ways, and appeared to the writer to meet the requirements of large cars driven rapidly on rough roads, more perfectly and completely than any thing of the kind before observed.

The Lee Manufacturing Co., Port Huron, Mich., are making on contract carburetors, transmissions, steering gears and other special parts used by automobile manufacturers. They are also manufacturers of pneumatic tools and a full line of brass goods.

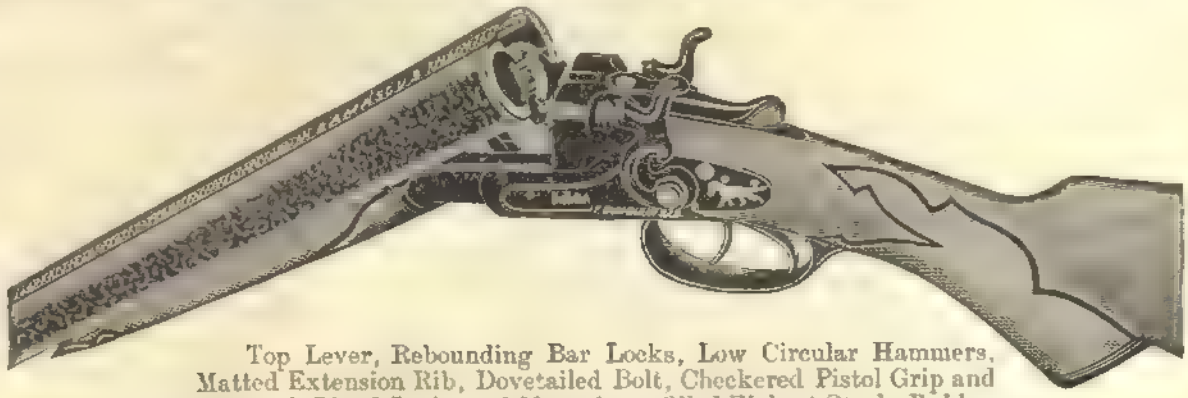
The transcontinental automobile exposition trip of the Winton Motor Carriage Co. ended in Stockton, Cal., November 17. The expedition traveled 55 days and through 17 States and the Dominion of Canada exhibiting their new model K in 25 different cities from coast to coast.

Double Barrel Shot Guns.

Belgian.

Top Lever, Rebounding Bar Locks, Low Circular Hammers, Matted Extension Rib, Dovetailed Bolt, Checkered Pistol Grip and Patent Fore-end, Blued Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Left Barrel Modified Choke Bored.

	Each
No. 50—12 Gauge, 30 In. Blued Smokeless Steel Barrels. Weight 7½ to 8¼ lbs.	$17.50
No. 52—16 Gauge, 28 In. Blued Smokeless Steel Barrels. Weight 6½ to 7¼ lbs.	17.50



Top Lever, Rebounding Bar Locks, Low Circular Hammers, Matted Extension Rib, Dovetailed Bolt, Checkered Pistol Grip and Fore-end, Blued Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Left Barrel Modified Choke Bored.

	Each
No. 60—12 Gauge, 30 In. Damascus Finish Steel Barrels. Weight 7½ to 8¼ lbs.	$18.50

Top Lever, Rebounding Bar Locks, Low Circular Hammers, Matted Extension Rib, Dovetailed Bolt, Fancy Checkered Pistol Grip with Rubber Cap and Patent Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Left Barrel Modified Choke Bored.

	Each
No. 70—12 Gauge, 30 In. Extra Twist Finish Steel Barrels, Weight 7½ to 8¼ lbs.	$18.50
No. 72—16 Gauge, 28 In. Extra Twist Finish Steel Barrels, Weight 6½ to 7¼ lbs.	18.50

BAKER & HAMILTON

Double Barrel Shot Guns.

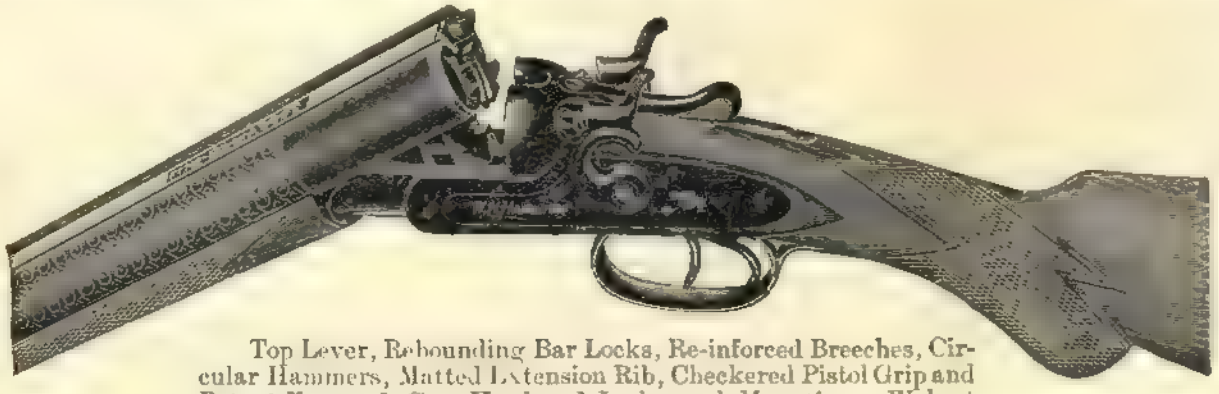
Belgian.

Top Lever, Rebounding Back Action Locks, Circular Hammers, Extention Rib, Checkered Pistol Grip, Patent Fore-end, Case Hardened Mountings, Walnut Stock, and Iron Butt Plate.

	Each
No 10—12 Gauge, 30 In. Twist Finish Steel Barrels, Weight 7¼ to 8 lbs.,	$10.50

Top Lever, Rebounding Bar Locks, Circular Hammers, Extension Rib, Checkered Pistol Grip and Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Steel Butt Plate

	Each
No. 20—12 Gauge, 30 In. Twist Finish Steel Barrels, Weight 7½ to 8½ lbs.,	$12 50
No. 22—16 Gauge, 28 In Twist Finish Steel Barrels Weight 6½ to 7¼ lbs.,	12 50



Top Lever, Rebounding Bar Locks, Re-inforced Breeches, Circular Hammers, Matted Extension Rib, Checkered Pistol Grip and Patent Fore-end, Case Hardened Locks and Mountings, Walnut Stock, Steel Butt Plate.

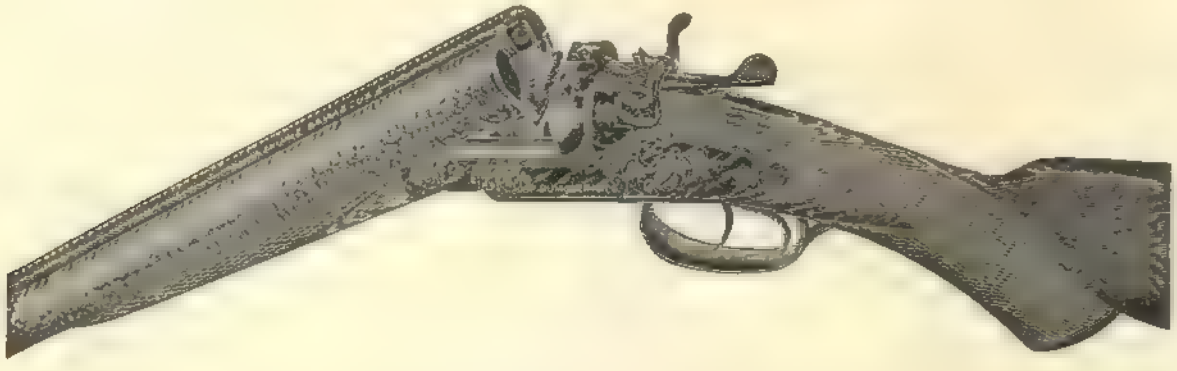
	Each
No. 30—12 Gauge, 30 In. Damascus Finish Steel Barrels, Weight 7 to 8 lbs ,	$15.00
No. 32—16 Gauge, 28 In. Damascus Finish Steel Barrels, Weight 6½ to 7¼ lbs.,	15.00

Double Barrel Shot Guns.

Belgian "Interchangeable."

Top Lever, Rebounding Bar Locks, Low Circular Hammers, Matted Extension Rib, Dovetailed Bolt, Fancy Checkered Pistol Grip and Patent Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Left Barrel Modified Choke Bored.

	Each
No. 75—12 Gauge, 30 In. Fine Damascus Finish. Steel Barrels, Weight, 7½ to 8¼ lbs.	$19.00



Top Lever, Rebounding Bar Locks, Scott Hammers, Matted Extension Rib, Greener Treble Bolt, 2 Side Wing Bolts, Auxiliary Wedge Lock on Frame, Checkered Pistol Grip and Purdy Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Left Barrel Modified Choke Bored.

	Each
No. 85—12 Gauge, 30 In. Blued Nitro Steel Barrels, Weight, 7 to 8 lbs., ...	$31.50
No. 87—16 Gauge, 28 In. Blued Nitro Steel barrels, Weight, 6½ to 7 lbs., ...	31.50
No. 86—12 Gauge, 30 In. Genuine Damascus Steel Barrels, Weight, 7 to 8 lbs., ...	38.00
No. 88—16 Gauge, 28 In. Genuine Damascus Steel Barrels, Weight, 6½ to 7 lbs., ...	38.00

Double Barrel Shot Guns.

Belgian, "Interchangeable."

Top Lever, Rebounding Bar Locks, Low Circular Hammers, Matted Extension Rib, Dovetailed Bolt, Checkered Pistol Grip and Patent Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Left Barrel Modified Choke Bored.

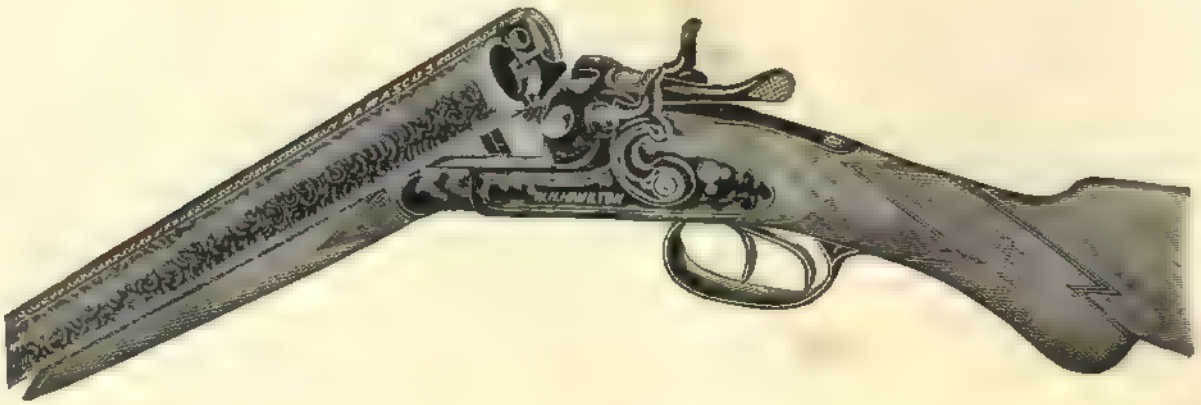
	Each
No. 25—12 Gauge, 30 In. Damascus Finish Steel Barrels. Weight 7½ to 8¼ lbs.	$14.50

Top Lever, Rebounding Bar Locks, Smokeless Re-Inforced Breech, Circular Hammers, Matted Extension Rib, Checkered Pistol Grip and Fore-end, Case Hardened Locks and Mountings, Engraved Oiled Walnut Stock, Rubber Butt Plate.

	Each
No. 40—12 Gauge, 30 In Extra Twist Finish Steel Barrels Weight 7½ to 8¼ lbs. .	$15.50
No. 42—16 Gauge 28 In. Extra Twist Finish Steel Barrels, Weight 6¾ to 7½ lbs. .	15.50
No. 44 20 Gauge, 26 In Extra Twist Finish Steel Barrels Weight 6 to 6½ lbs. .	15.50

Double Barrel Shot Guns.

Belgian.



Top Lever, Rebounding Bar Locks, Circular Hammers, Matted Extension Rib Greener Cross Bolt, Checkered Pistol Grip and Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate.

	Each
No. 45—12 Gauge, 30 In. Damascus Finish Steel Barrels, Weight 7½ to 8¼ lbs., ...	$15.50

Reliance.

Top Lever, Rebounding Locks, Re-inforced Breech, Automatic Safety, Matted Extension Rib, Greener Treble Bolt, Checkered Pistol Grip and Purdy Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Steel Butt Plate, Both Barrels Choke Bored.

	Each
No. 125—12 Gauge, 30 In. Blued Fluid Steel Barrels, Weight 7 to 7¾ lbs., ...	$80.00
No. 127—16 Gauge, 28 In. Blued Fluid Steel Barrels, Weight 6½ to 7¼ lbs . . .	80.00

Department No. 7.

SPORTING GOODS.

TO THE GUN TRADE.

We send out no Guns on Approval, and do not Guarantee their Shooting Qualities.
All are Carefully Inspected and the Chambers and Locks Tested before they leave the House.
We cannot be held Responsible for Misfires when recapped or inferior Shells are used.

REPAIRS.

When repairs for Foreign-Made Guns, Rifles and Revolvers are wanted, it is necessary for us to have the Arm or broken part, as the parts for these Arms are **not interchangeable,** and must be made by hand, at **a proportionate cost.**

When one Match Hammer is wanted, it is necessary for us to have **both** Locks and the Hammer that is to be Matched. When two Hammers for the same Gun are wanted, if for a Muzzle-Loader, we will have to **have the gun; if for a Breech-Loader, the Stock will answer.**

When Goods are shipped us for Repairs or for any other cause, Mark Your Full Name and Address on **Package and advise us by Mail, that we may Give the Matter Prompt Attention.**

All Guns sent to us by Express should be Packed in a Box, as the Express Company is Not Responsible **for Loss or Damage if Shipped Without Being Boxed.**

All Claims must be Made on Receipt of Goods or they will not be considered. We cannot assume any Responsibilty for Guns burst by using Nitro Powder, shooting Buckshot or having an Obstruction in the Barrel. In all Claims of this nature it is Necessary to Submit the Case to Manufacturers who will pass on same.

BAKER & HAMILTON,

SAN FRANCISCO. SACRAMENTO.

BLOWERS AND FORGES.

ROYAL WESTERN CHIEF.

FIG 1072.

The Royal Fire Pot

Size (inside)
9x11½x4 inches deep.
NO CLAY.

No Belts, no Clutches, no Ratchets.

The blower case is constructed to take the fewest elbows in piping, thereby saving about 10 per cent of blast force, besides valuable room which is occupied by other blowers.

The crank turns FORWARD or BACKWARD, as to best suit the operator.

The gears are Phosphor Bronze and Steel, cut on the most scientific principle; they are FLAT and STRAIGHT CUT (no spiral or worm gears); which, combined with Steel Shafts and Composition Bearings made and assembled perfectly, run noiseless, and make this the best blower in the world.

The Gear Case is oil tight and dust proof, permitting gears to run in a continuous bath of oil.

The Blast is very powerful, and as positive and steady as a power blower, and takes less labor to operate than others. The after blast is strong and lasting.

Fire-pot inside measurement is 9x11½ inches and 4 inches deep. Requires no clay.

Fan, 12 in. Weight, 100 lbs.	
Price, complete, as shown	$28.00
Cherry Heat Welding Compound.	
Price, per lb.	

THIS IS THE BLOWER THAT HAS REVOLUTIONIZED THE WORLD'S HAND-BLACKSMITHS' FIRES

AND MADE BLACKSMITHING A MOST PROFITABLE BUSINESS.

MADE WITH ADJUSTABLE BALL BEARINGS ONLY.

No. 400

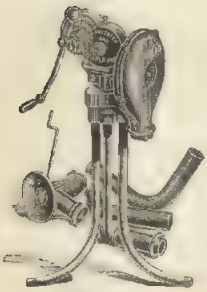


FIG. 1073

No. 400 Champion "Patented" High Speed Spiral Geared Steel Blacksmith Blower and Steel Forges have now been in the hands of the user for six (6) years and have completely revolutionized the Hand Blacksmith fires of the world. The white heat pressure blast given by the No. 400 Steel Blowers and Forges places every blacksmith who uses them on competitive basis with the most up-to-date manufacturing plants. The Bearings are all Adjustable Ball Bearings of the very best possible grade that can be manufactured. The No. 400 Blower is guaranteed to produce a white heat blast equal to a Power Blower

No. 400 Champion Steel Blower, Fan 12 inches in diameter, with tuyere iron and piping complete. Weight, 100 lbs...$37 00

No. 408

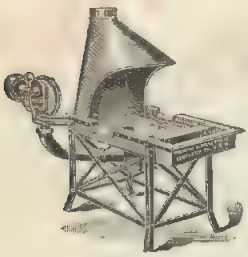


FIG. 1074

No. 401.

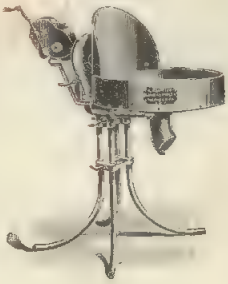


FIG. 1075

No. 408 Champion Steel Forge with Half Hood, Fan 12 inches in diameter, Hearth 30 x 36 inches. Height 30 inches, Weight 225 lbs. Without Water Tank $65 00

With Water Tank, extra 5 00

No. 401 Champion Steel Rivet Forge with Shield, Hearth 18 inches in diameter, Fan 9 inches in diameter, Height 30 inches, Weight 90 lbs 35 00

No. 402 Champion Steel Toolmakers' Forge, with Half Hood, same as above. 35 00

BUFFALO PORTABLE FORGES.

BUFFALO BLACKSMITH'S FORGE, NO. 0.

FIG. 1087

See special catalog of 26 styles free on application.

Height to top of bowl	32 inches
Size of hearth	8x6 inches
Diameter of fan	11 inches
Weight, without tank	255 pounds
Weight, with tank	270 pounds
Price, without tank	$50.00
Price, with tank	54.00

BUFFALO RIVET FORGE, NO. 5.

FIG. 1088

Height to top of bowl	33 inches
Diameter of hearth	18 inches
Diameter of fan	6 inches
Weight of forge	65 pounds
Price	$24.00

BUFFALO DOWN DRAFT FORGES.

BUFFALO STATIONARY FORGE, NO. 08T.

FIG. 1089.

Height to top of fire pan	36 inches
Diameter of fire pan	18 inches
Weight, No. 08T	630 pounds
Weight, No. 08C	865 pounds
Weight, No. 08	565 pounds
Price, No. 08T	$125.00
Price, No. 08C	110.00
Price, No. 08	90.00

Write for our latest catalogue of Down-Draft Forges containing sixty styles.

THE CHAMPION SELF-FEED POST DRILLS.

Ball Bearing.

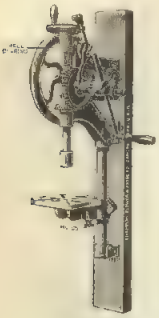


FIG. 1090.

No. 93.

FIG. 1091.

No. 90.

FIG. 1092.

No. 98.

FIG. 1093.

Champion Ball Bearing Self-Feed Post Drill. Drills to center of 16-inch circle. Has two speeds. Weight 130 lbs. $12 50

No. 93 Champion Self-Feed Post Drill. Drills to center of 15-inch circle. Has two speeds. Weight 125 lbs. 10 00

No. 90 Champion Self-Feed Post Drill. Drills to center of 14½-inch circle. Weight 100 lbs 8 50

No. 98 Champion Self-Feed Post Drill. Drills to center of 14-inch circle. Weight 95 lbs 8 00

All of above Drills have slotted lathe turned tables. All journal bearings are ground and polished out of the solid metal. All bored for ½-inch shank bits; if specially ordered will be bored 41-64.

Extra for power on all above drills $3 00

No. 150.

FIG. 1094.

No. 150 Lever Forge with Shield. Hearth 18 inches in diameter. Height 30 inches..... $14 00

No. 151 Lever Forge with Half Hood, same as above..... 16 00

No. 152 Crank Forge with Shield. Hearth 18 inches in diameter. Height 30 inches..... 14 00

No. 153 Crank Forge with Half Hood, same as above..... 16 00

The capacity of these Forges is not large enough where a man expects a day's work from a workman, as it is only intended for small odd jobs, making a good farmer's forge.

No. 153.

FIG. 1095.

THE CHAMPION "PATENTED" AUTOMATIC SELF-FEED AND LEVER-FEED DRILLS.

NO. 200.

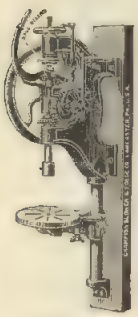


FIG. 1036

NO. 203.

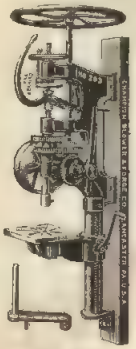


FIG. 1037

NO. 203½.

FIG. 1038.

Nos. 200, 203 Post Drills and No. 203½ Upright Drill are all supplied with the Champion Patented Combination Automatic Self-Feed and Lever Feed, which gives INSTANTANEOUS QUICK RETURN to the drill bit with both feeds and saves 95 per cent in time and labor in getting the bit out of the work and again replacing it for the next hole. The Lever-Feed will save 50 per cent in time and labor in reaming, drilling small holes, countersinking etc.

No. 200 Champion "Patented" Self-Feed and Lever-Feed Post Drill with Ball Bearings. Has two speeds and Double Back Gearing. With our third gear principle the second speed has the same ratio to the first speed. Drills to center of 16-inch circle. Bored for ¾-inch shank bits, if specially ordered will be bored ⅞. Weight, 460 lbs. $36 00
Extra for Tight and Loose pulleys for power. 4 00

No. 203 Champion "Patented" Combination Self Feed and Lever-Feed Post Drill. Has Double Back Gears; has two speeds; has Rack for lowering and raising the table; is supplied with Wheel Hanger; has Ball Bearings; drills to center of 21-inch circle; is bored for ⅞-inch shank bits. If specially ordered will be bored for ½-inch shank bits. With Cone Pulleys and Countershaft. Weight, 425 lbs. $65 00

No. 203 Drill, same as above, with Tight and Loose Pulleys for power and hand combined. Weight, 340 lbs. $54 00

No. 203 Drill, same as above, for hand only. Weight, 325 lbs $50 00

No. 203½ Champion "Patented" Self Feed and Lever-Feed Upright Drill, precisely the same as No. 203 Drill the only difference is that the 203½ Upright Drill stands on its own base firm and substantial. With Cone Pulleys and Countershaft. Weight, 600 lbs. $85 00

No. 203½ Upright Drill, same as above, with Tight and Loose Pulleys for power and hand combined. Weight, 550 lbs. $75 00

No. 203½ Upright Drill, same as above, for hand only. Weight, 525 lbs $70 00

BUFFALO BLACKSMITH'S DRILLS.

Send for Catalogue showing 20 styles.

FIG. 1096.

Buffalo Drill No. 66. Cut Gears, Automatic Feed. Drills to center of 15-in. circle. Run of feed, 3½ in. Length, 37 in. Weight, 100 lbs.

Price.....$22 00

All Buffalo Drills have their bearings bored and reamed in the solid frame. No Babbitt linings to wear away.

FIG. 1100.

Buffalo Drill No. 71 Automatic Feed. Cut Gears Drills to center of 11-in circle. Length, 44 in. Weight, 125 lbs. Run of feed, 6 in.

Price.....$36 00

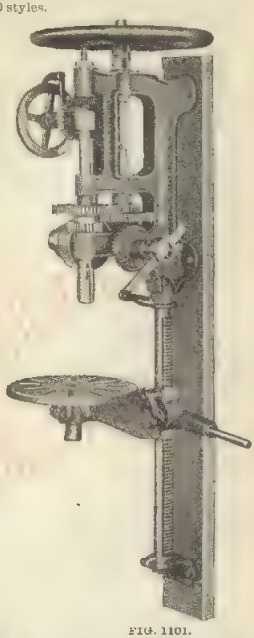


FIG. 1101.

Buffalo Drill No. 90. Ball Bearings. Morse No. 2 Taper Socket takes Standard Taper Shank Drills. Automatic Feed Drills to center of a 22-in. circle. Run of feed, 6 in. Weight, 325 lbs.

Price, without Pulley..$60 00
Price, with Pulley..... 54 00

A Small Power Blower for use where a limited supply of air is needed.

Constructed with same care as Buffalo "B" Vol. Blowers. Guaranteed to run continuously at full load without heating bearings.

FIG 1102

No. 00 EXPERIMENTAL BLOWER.

Number	Outside Diameter of Outlet	Height	Weight	Pulley		Price	
				Diameter	Face	Blower	Exhauster
00	2¾	6 in.	20 lbs.	1¼	1¼	$ 8 00	$2 00 net extra.
0	5	12 "	30 "	1¾	1¾	10 00	
½	4½	18 "	45 "	1¾	2	14 00	

Vises.

Champion.

Nos.	115	116	118	121
Code	Abcamos	Abraxine	Abroad	Abroto
Jaws, In.	2	2½	2½	3
Weight Each, lbs.	2½	3	3¾	7½
Each	$1.00	1.25	1.50	2.00

Oval Slide.

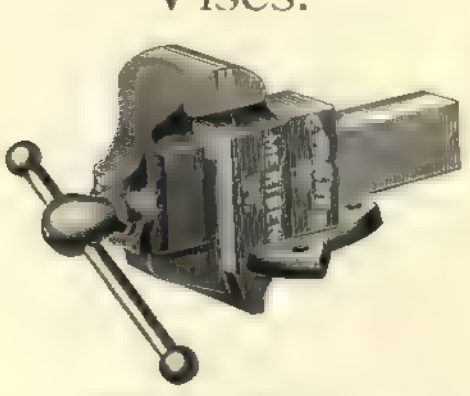
Nos.	00	0	1	2	3	4
Code	Abaltz	Abbaker	Abobare	Abocera	Abdreera	Abrachis
Jaws, In.	2¼	2½	3	3½	4	4½
Screw, In.	½	⅝	¾	⅞	1	1⅛
Weight Each, lbs.	7¼	10½	16½	24	35½	52½
Each	$1.70	2.20	3.00	3.80	5.00	6.50

Woodworkers'.

Code Abcamos
No. 6—4½ In. Jaws. Opens 9 In. . . . . Each $10.00

Weight, 44 lbs. Each.

Vises.



Parker's Parallel.

Stationary Bottom, Extra Strong Slide and Screw

Nos.	C	D	E	G
Code	Abocetmio.	Abochorno.	Abocinar.	Abocock
Jaws In.,	4⅛	4⅝	5	6
Jaws Open, In.,	5½	6½	7	9½
Weight Each, lbs.,	46	60	74	135
Each,	$8.50	10.00	13.00	25.00

Woodworkers'.

Stationary Bottom and Swivel Back Jaws.

Code Abogacias. Each

No. 377—4½ In. Jaws, Opens 9½ In., . $11.00

Weight 59 lbs. Each.

Woodworkers'.

Swivel Bottom and Back Jaws.

Code Abogadillo. Each

No. 277—4½ In. Jaws, Opens 9½ In., . $13.00

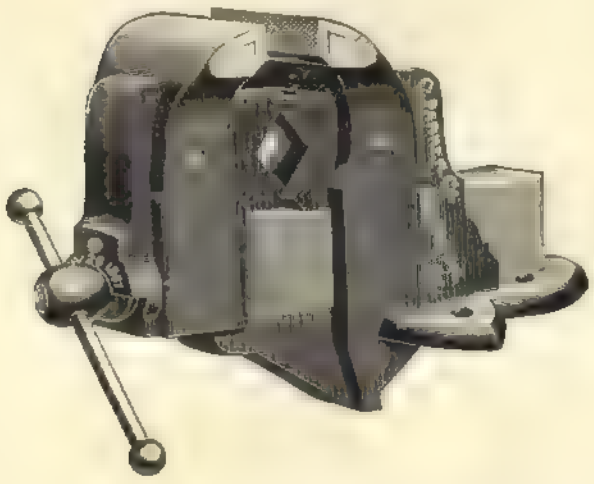
Weight, 65 lbs. Each.

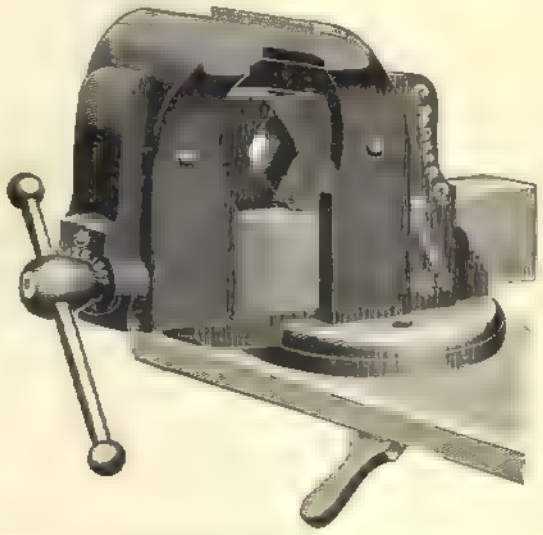
Parkers' Victor.

Swivel Bottom and Swivel Back Jaws.

Nos.	270	271	272
Code	Abolani	Abolado	Abolaria
Jaws In.,	3¼	3⅝	4½
Jaws Open, In.,	4¼	5½	6½
Weight Each, lbs.,	30	42	60
Each.	$7.00	8.50	12.50

Vises.





Parker's Combination Pipe, Round and Piper Jaws.

Code Abolerem. — Each

No. 88½—4¾ In. Jaws, for Holding 4 In. Pipe and Under, ... $28.00
Weight, 94 lbs. Each.

Code Abolete.

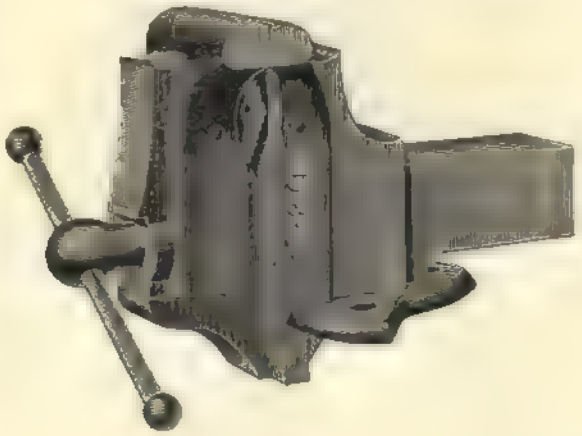
No. 89½—5⅜ In. Jaws, for Holding 6 In. Pipe and Under, ... 35.00
Weight, 141 lbs. Each.

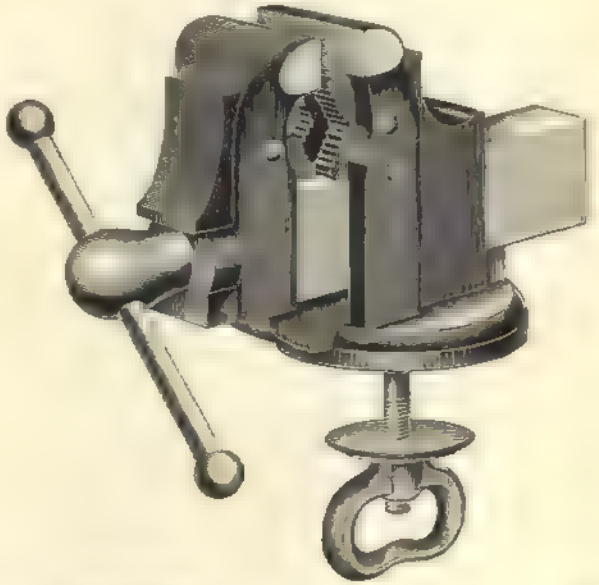
Code Abolicon — Each

No. 87—3⅝ In. Jaws, for Holding 2 In. Pipe and Under, . . . $16.00
Weight, 41 lbs. Each.

Code Abolmos

No. 88—4⅛ In. Jaws, for Holding 3 In Pipe and Under . . . 20.00
Weight 59 lbs. Each.





Code Abolisco. — Each

No. 8½—4¾ In. Jaws, for Holding 4 In. Pipe and Under, ... $28.00
Weighs, 75 lbs. Each.

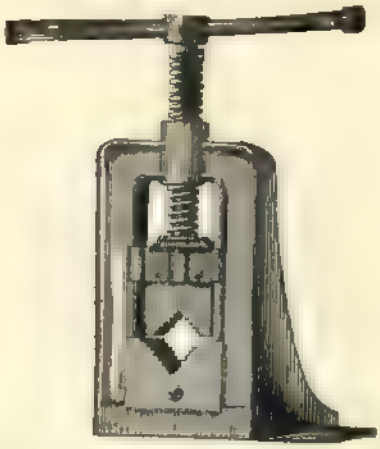
Code Abolshing — Each

No. 7—3⅝ In. Jaws, for Holding 2 In Pipe and Under, ... $16.00
Weight, 39 lbs. Each

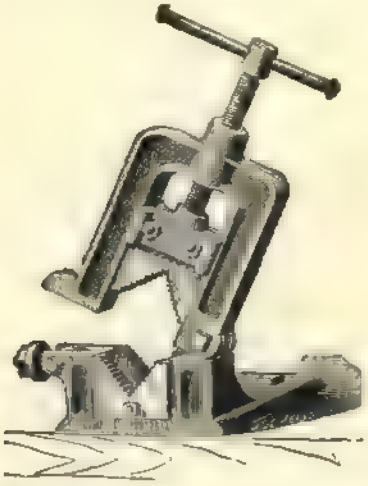
Code Abolthf

No. 8—4⅛ In. Jaws, for Holding 3 In. Pipe and Under, ... 20.00
Weight, 57 lbs. Each.

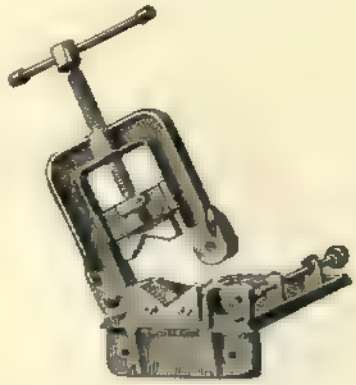
Pipe Vises.



Code Word. — Each
No. 1 Takes Pipe ⅛ to 2½ In., Solid Malleable Iron Frame, Steel Screw and Lever, Milled and Tempered Steel Jaws, ... $3.00
Weight, 9½ lbs. Each.



Code Word. — Each
No. 5—Takes Pipe ⅛ to 2½ In., Hinged Malleable Iron Frame, Steel Screw and Lever, Milled and Tempered Steel Jaws, ... $10.00
Weight, 30 lbs. Each.

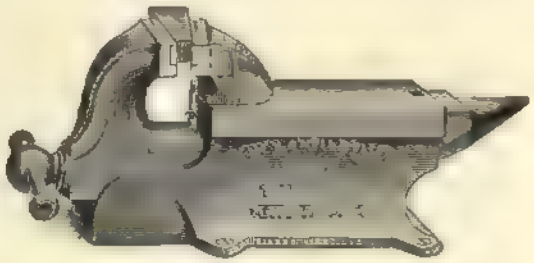


Code Abutment. — Each
No. 25—Takes Pipe ½ to 6 In., Hinged Malleable Iron Frame, Steel Screws and Lever, Milled and Tempered Steel Jaws, . . . $32.00
Weight, 60 lbs. Each.

Swivel Pipe Grips.

Code Abundance. — Per Set
No. 1—Steel, Holds Pipe ¼ to 2½ In., Fits any Vise with Jaws 3 to 4½ In., ... $2.50
Weight, 7 lbs. Per Set.

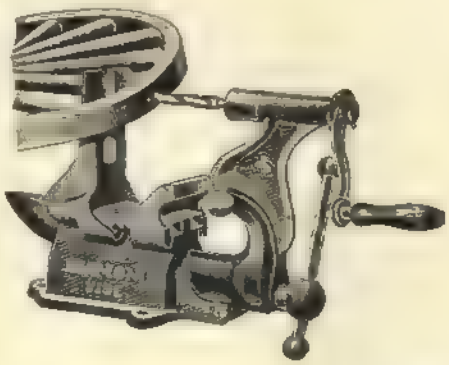
Combined Vises and Anvils.



Cheney's.

Chill Hardened Face Anvil, Steel Faced Jaws, Vise has Wrought Screw.

Nos.	10	20	30	40
Code	Abojas	Abrialibo.	Aborat.	Abonlaba.
Jaws In.,	$2\frac{1}{2}$	$3\frac{1}{2}$	4	$4\frac{1}{2}$
Jaws Open In.,	3	4	5	6
Face of Anvil, In.,	$4\frac{1}{2}$x2	$6\frac{1}{2}$x3	8x$3\frac{1}{2}$	$8\frac{1}{2}$x4
Weight Each, lbs.,	$8\frac{1}{2}$	32	43	56
Each,	$3 50	4.50	5 50	6 50



Diamond.

Without Drill Attachment.

Code Abedaron. Each

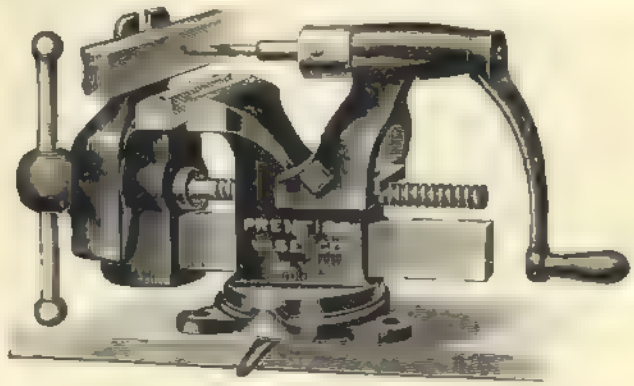
No. 75—4 In. Jaws, Opens 12 In., Face of Anvil 7x3 In., $5.00
Weight, 38 lbs. Each

With Drill Attachment.

Code Abedaron. Each

No. 78—4 In. Jaws, Opens 12 In., Face of Anvil 7x3 In., With Drill Attachment. $8.00
Weight, 51 lbs. Each.

These Vises are very convenient for Farmers as well as Mechanics, as they are adapted for a large range of work. Can be used as a Pipe Vise and will hold Pipe up to 2 In.



Prentiss' New Swivel.

Wrought Steel Sliding Bar, Screw, Lever and Jaws, Polished Anvil.

Without Drill Attachment.

Code Abortuene. Each

No. 60—2 In. Jaws, Opens 2 In. . $1 65
Code Aborigena. Weight, 5 lbs. Each

No. 61—$2\frac{1}{2}$ In. Jaws, Opens 3 In. 2.25
Code Abonsor. Weight, 12 lbs. Each.

No. 62—3 In. Jaws, Opens 4 In., . . 3.00
Code Aborsam. Weight, 18 lbs. Each.

No. 63—4 In. Jaws, Opens 6 In.. . 4.50
Weight, 32 lbs. Each.

With Drill Attachment.

Code Abortanos. Each

No. 62D—3 In. Jaws, Opens 4 In. with Drill Attachment. . . . $5.00
Weight, 42 lbs. Each

Code Abortient.

No. 63D—4 In. Jaws, Opens 6 In., with Drill Attachment 7.00
Weight, 48 lbs. Each.

Solid Box Vises.

Nos. and Weights	35	40	45	50	55	60	65	70	75	80
Jaws, In.,	3½	4	4¼	4½	4¾	5	5	5¼	5¼	5½
Each,	$10.00	10.50	11.00	11.50	12.00	13.00	14.00	15.00	16.00	17.50

Nos. and Weights	85	90	95	100	105	110	115	120	125	130
Jaws, In	5½	5¾	5¾	6	6	6	6	6½	6½	6½
Each	$18.50	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.50	29.00

Nos. and Weights,	135	140	145	150	160	170	180	190	200
Jaws, In.,	6½	7	7	7	7¼	7¼	7½	7¾	8
Each,	$31.50	33.00	35.00	36.00	41.50	44.50	47.00	53.00	56.00

Anvils.

"Our Best."

Wrought Iron, Solid Steel Face.

Weights 80 to 425 lbs	Base $..
Weights 70 to 79 lbs.,	Extra Per Pound $0.00½
Weights 60 to 69 lbs.,	.01
Weights 50 to 59 lbs.,	.02

Vulcan.

Cast Iron, Steel Face.

Weights,	30	40	50
Each	$4.50	5.25	6.00

Weights	60	70	80
Each	$6.50	7.25	8.00

Weights	90	100
Each,	$9.00	10.00

TOY WHIPS.

5600-3½ Toy Whips. With fancy handles and whistles Total length, 34 in. Packed 1 dozen in pkg
Per doz., $0.35

5602-4 Toy Whips. With fancy handles and whistles. Total length, 36 in. Packed 1 dozen assorted on card.
Per doz , $0.40

5606-7½ Toy Whips. With fancy handles and whistles; braided white leather lashes. Total length, 43 in. Packed 1 dozen assorted on a card
Per doz., $0.75

5608-8½ Toy Whips. With fancy handles and whistles; braided white leather lashes. Total length, 60 in. Packed 1 dozen assorted on a card.
Per doz., $0.85

5863-7½ Leather Toy Whips. Braided leather handles and whistles. Total length, 36 in. Packed 1 dozen assorted
Per doz., $0.75

5865-18½ Leather Toy Whips. With fancy handles and whistles. Total length 43 in. Packed ½ dozen assorted.
Per doz., $1.85

5609-18½ Leather Toy Whips. With fancy handles and whistles. Total length 48 in. Packed ½ dozen assorted on a card.
Per doz., $1.85

CHINA TOY TEA SETS.

We do not break packages.

3050-4½ China Toy Tea Set. Seven pieces; decorated; 1 set in a box. Size of box, 4 x 6 in. 1 dozen sets in a pkg
Per doz. sets, $0.45

3051-7½ China Toy Tea Set. Eleven pieces and metal spoons; decorated; each set in a box. Size of box, 5½ x 8¼ in. 1 dozen sets in a pkg
Per doz. sets, $0.75

3052-8½ China Toy Tea Set. Eleven pieces and metal spoons, decorated; tea pot and pitcher decorated in two colors and gold Each set in a box. Size of box, 5½ x 8¼ in 1 dozen sets in a pkg
Per doz. sets, $0.85

3053-10 China Toy Tea Set Seven large pieces decorated in two colors and gold Each set in a box Size of box, 5¾ x 8½ in ½ dozen sets in pkg.
Per doz. sets, $1.00

3055-18½ China Toy Tea Set. Fifteen pieces decorated in two colors and gold; tea pot, pitcher and sugar bowl em bossed Each set in a box. Size of box, 7¼ x 10¼ in. ½ dozen sets in a pkg
Per doz. sets, $1.85

3056-20 China Toy Tea Set. Fifteen pieces; green and white tinted china, decorated in two colors and gold; tea pot embossed and decorated with colored picture. Each set in a box Size of box, 6¾ x 10 in. ½ dozen sets in pkg.
Per doz. sets, $2.00

3057-20 China Toy Tea Set. Fifteen pieces and spoons; fancy shape embossed tea pot, decorated with two colors and gold Each set in a box. Size of box, 7½ x 11 in ½ dozen sets in a pkg.
Per doz. sets, $2.00

3058-22½ China Toy Tea Set. Fifteen pieces and spoons; plates and cups decorated with flower designs striped with gold; tea pot embossed and decorated with flowers and gold stripes. Each in a box. Size of box, 8 x 11 in. ½ dozen sets in a pkg.
Per doz. sets, $2.25

3059-22½ China Toy Tea Set. Twenty-one pieces; decorated white china; tea pot, sugar bowl and pitcher decorated in colors and gold. Each set in a box. Size of box, 8½ x 11½ in. ½ dozen sets in a pkg.
Per doz. sets, $2.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CHINA TOY TEA SETS—Continued.

3061-22½ China Toy Tea Set. Twenty-one pieces decorated in two colors and gold; plates and saucers with gold striping around edge. Each set in a box Size of box, 8½ x 11½ in. ½ dozen sets in a pkg. **Per doz. sets, $2.25**

3060-22¾ China Toy Tea Set. Twenty-one pieces neatly decorated in two colors and gold; tea pot, cups, sugar bowl and pitcher embossed Each set in a box. Size of box, 8¾ x 11 in. ½ dozen sets in a pkg. **Per doz. sets, $2.25**

3063-30 China Toy Tea Set. Twenty-one pieces; embossed tinted china decorated with colored flowers and gold. Each set in a box. Size of box, 11 x 12½ in 1-3 dozen sets in pkg.

Per doz. sets, $3.00

3064-40 China Toy Tea Sets. Twenty-one pieces and spoons, tea pot, sugar bowl, pitcher and cups neatly embossed and decorated in colors and gold scrolls; decorated plates. Each set in a box Size of box, 11 x 14¼ in. ¼ dozen sets in a pkg **Per doz. sets, $4.00**

3065-40 China Toy Tea Set. Twenty-one pieces, decorated with stripes and flower designs in three colors Each set in a box. Size of box, 11 x 14¼ in. ¼ dozen sets in a pkg **Per doz. sets, $4.00**

3067-40 China Toy Tea Set Twenty one pieces; colored stripe around edge, decorated with flower designs in two colors and gold. Each set in a box Size of box, 10½ x 14¼ in. ¼ dozen sets in pkg **Per doz. sets, $4.00**

3068-45 China Toy Tea Set. Fifteen large pieces and spoons; gold striping around edge; decorated with flower designs in three colors and gold. Each set in a box. Size of box, 10½ x 14¼ in ¼ dozen sets in a pkg

Per doz. sets, $4.50

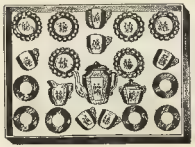
3069-40 China Toy Tea Set. Fifteen pieces; fine quality royal blue china, neatly decorated with gold designs Each set in a box Size of box, 7½ x 10½ in. ¼ dozen sets in pkg. **Per doz. sets, $4.00**

3071-25 China Toy Tea Set. Twenty-one pieces; tinted borders; decorated with flower designs in two colors and gold Each set in a box. Size of box, 11 x 14¼ in. ¼ dozen sets in a pkg.

Per doz. sets, $4.50

3075-60 China Toy Tea Set. Twenty-one pieces decorated with colored stripe and flowers in two colors; fancy shaped tea pot, sugar bowl and pitcher neatly embossed and decorated with colored flowers. Each set in a box. Size of box, 11 x 14¼ in

Per doz. sets, $6.00



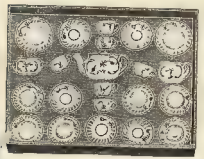
3077-75 China Toy Tea Set Twenty-two pieces decorated with flower designs in two colors; gold striped edges; fancy cake plate with perforated edges; tea pot, sugar bowl and pitcher embossed and decorated with large flower designs and leaves in natural colors; gold striped handles Each set in a box Size of box, 12¼ x 15 in. **Per doz. sets, $7.50**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CHINA TOY TEA SETS—Continued.

3078-85 China Toy Tea Set. Twenty-one pieces; colored stripe around edges; plates and cups decorated with flower designs in two colors; fancy shaped tea pot, sugar bowl and pitcher embossed and decorated with colored flower designs. Each set in a box. Size of box, 11½ x 16¾ in. **Per doz. sets, $8.50**

3079-85 China Toy Tea Set. Twenty-one pieces decorated with colored stripe around edge; center decorated with flowered designs in two colors and gold; fancy shaped tea pot, sugar bowl and pitcher neatly decorated and embossed with gold. Each set in a box. Size of box 11½ x 16¾ in. **Per doz. sets, $8.50**



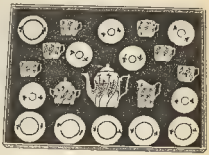
3081-90 China Toy Tea Set. Tinted edges changing to white center, tea pot, sugar bowl, pitcher and cups embossed and decorated with flower designs in two colors and gold on tinted back ground; plates with embossed edges Each set in a box. Size of box, 11½ x 16¾ in **Per doz. sets, $9.00**

3083-105 China Toy Tea Set. Twenty-one pieces; colored stripe around edges; center decorated with flower designs in four colors; tea pot, sugar bowl and pitcher decorated with large flower designs in natural colors; gold striped handles. Each set in a box. Size of box, 14 x 17½ in. **Per doz. sets, $10.50**

3084-120 China Toy Tea Set. Twenty one pieces; embossed china; colored stripe around edge; center decorated with flower designs in three colors and gold; tea pot, sugar bowl and pitcher with gold handles. Each in a box. Size of box, 15 x 20½ in.
Per doz. sets, $12.00

3085-120 China Toy Tea Set. Twenty-one pieces; fine quality embossed china decorated with colored stripes and flower designs in colors and gold; tea pot, sugar bowl and pitcher decorated with colored flower designs; gold handles. Each set in a box. Size of box, 15 x 20½ in. **Per doz. sets, $12.00**

3086-120 China Toy Tea Set. Twenty-one pieces and spoons; tinted edges changing to white center; decorated with flower design in two colors; fancy shaped tea pot, sugar bowl and pitcher embossed and decorated flowers in natural colors and gold; gold striped handles. Each set in a box. Size of box, 15 x 21 in. **Per doz. sets, $12.00**



3089-120 China Toy Tea Set. Twenty-two pieces with tinted edges; center decorated with flowers in natural colors; tea pot, sugar bowl and pitcher embossed and decorated with assorted flower designs and gold; gold striped handles; fancy shape cake plate with open work edge. Each set in a box. Size of box, 15 x 21 in. **Per doz. sets, $12.00**

3090-120 China Toy Tea Set. Twenty-one pieces; embossed china; gold stripe around edge and center; tea pot, sugar bowl, pitcher and plates decorated with flower designs in three colors and gold. Each set in a box. Size of box, 12¾ x 16¾ in. **Per doz. sets, $12.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CHINA TOY TEA SETS—Continued.

3091-120 China Toy Tea Set. Twenty-one pieces with tinted edges; gold striped center; fancy shaped tea pot, sugar bowl, pitcher and cups embossed and decorated with flower designs in natural colors; gold handles. Each set in a box. Size of box, 13 x 17 in
Per doz. sets, $12.00

3092-135 China Toy Tea Set. Twenty-one pieces and spoons; gold striped edge; fancy shaped tea pot, sugar bowl and pitcher decorated with flower designs and leaves in natural colors; gold striped handles. Each set in a box.
Per doz. sets, $13.50

3093-150 China Toy Tea Set. Fifteen large pieces; gold striping around edge; plates decorated with flower designs in two colors; tea pot, sugar bowl and pitcher neatly embossed and decorated with gold, also flowers and leaves in natural colors. Each set in a box. Size of box 13 x 18½ in. **Per doz. sets, $15.00**

3095-165 China Toy Tea Set. Twenty-three pieces and spoons; gold striped edges; centers decorated in colored flower designs; tea pot, sugar bowl and pitcher neatly embossed and decorated with gold scrolls and flower designs. Each set in a box. Size of box, 15 x 21 in
Per doz. sets, $16.50

3097-240 China Toy Tea Set. Twenty-one pieces tinted and embossed china; gold striping around edge and center; decorated with large flower designs in natural colors; tea pot, sugar bowl and pitcher decorated with embossed gold scrolls and large flower designs in natural colors on tinted back ground. Each set in a box Size of box, 15 x 21 in.
Per doz. sets, $24.00

3098-20 China Toy Tea Set. Nine large pieces decorated with colored striping around edge and center; flower designs in color and gold on tea pot, sugar bowl and pitcher. Each set in a box. Size of box, 6½ x 10 in. ½ dozen sets in pkg.
Per doz. sets, $2.00

3103-22½ China Toy Tea Set. Seven extra large pieces; plates with gold striping around edge and center; tea pot, sugar bowl, pitcher and cups embossed and decorated with colored flower designs and gold. Each set in a box. Size of box, 6¾ x 10 in. ½ dozen sets in a pkg.
Per doz. sets, $2.25

3106-30 China Toy Tea Set. Nine extra large pieces; plates with colored stripe around edge and center; balance of set decorated with flowers and leaves in natural colors. Each set in a box. Size of box, 9½ x 13 in. 1-3 dozen sets in a pkg
Per doz. sets, $3.00

3107-40 China Toy Tea Set. Eleven extra large pieces with decorated edges, tea pot, sugar bowl, pitcher and cups decorated with colored flower designs and gold. Each set in a box. Size of box, 9½ x 13½ in. ½ dozen sets in pkg.
Per doz. sets, $4.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CHINA TOY TEA SETS—Continued.

3109-40 China Toy Tea Set. Seven large pieces with colored stripe around edge; center decorated with flower designs in four colors and gold. Each set in a box. Size of box, 9 x 12½ in. ¼ dozen sets in pkg. **Per doz. sets, $4.00**

3112-45 China Toy Tea Set. Seven large pieces embossed and decorated with gold scrolls; tea pot, sugar bowl, pitcher and cups decorated with flowers and leaves in natural colors; gold striped handles. Each set in a box. Size of box, 9 x 12½ in **Per doz. sets, $4.50**

3113-45 China Toy Tea Set. Seven extra large pieces; neatly tinted, embossed and decorated with gold scrolls; tea pot, sugar bowl, pitcher and cups decorated with flowers in natural colors Each set in a box. Size of box, 9 x 12½ in. **Per doz. sets, $4.50**

3114-60 China Toy Tea Set. Eleven large pieces; plates decorated with gold designs; gold striping around edge; tea pot, sugar bowl, pitcher and cups striped with gold and decorated with colored flower designs. Each set in a box. Size of box, 10 x 14 in. **Per doz. sets, $6.00**

3120 90 China Toy Tea Set. Eleven extra large pieces neatly tinted and decorated with gold stripes; tea pot, sugar bowl, pitcher and cups decorated with colored picture; gold striped handles. Each set in a box. Size of box, 12 x16 in. **Per doz. sets, $9.00**

3121-105 China Toy Tea Set. Eleven extra large pieces; plates with tinted edges and decorated with gold striped center; fancy shaped tea pot, sugar bowl, pitcher and cups decorated with beautifully colored flowers in natural colors on tinted back ground; gold striped handles. Each set in a box. Size of box, 12 x 16 in. **Per doz. sets, $10.50**

3122-120 China Toy Tea Set. Eleven extra large pieces; tinted china decorated with highly embossed flowers in natural colors; plates and cups with gold striped edges Tea pot, sugar bowl and pitcher with gold handles Each set in a box. Size of box, 12 x 16½ in. **Per doz. sets, $12.00**

3124-180 China Toy Tea Set. Twenty-three extra large pieces; beautifully tinted china with gold edges; decorated with colored flower designs and leaves in natural colors; gold striped handles; packed in heavy wood display box. Size of box, 14 x 19½ in **Per doz. sets, $18.00**

3125-210 China Toy Tea Set. Twenty-one extra large pieces; fine quality china embossed and decorated with gold and colored flower designs Size of box 15 x 21 in. **Per doz. sets, $21.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CHINA TOY TEA SETS—Continued.

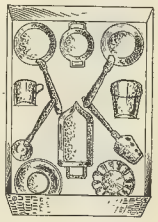
3126-240 China Toy Tea Set. Fifteen extra large pieces; fine quality tinted china; plates tinted and decorated with gold designs, fancy shaped tea pot, sugar bowl, pitcher and cups decorated with gold designs, also flowers in natural colors on tinted back ground; gold striped handles. Packed in heavy wood display box. Size of box, 14x19½ in.
Per doz. sets, $24.00

3127-360 China Toy Tea Set. Fifteen extra large pieces; fine quality china; plates with scalloped edges, striped with gold and decorated with colored flowered designs; fancy shaped tea pot, sugar bowl, pitcher and cups with gold edges and decorated with flowered designs in natural colors on tinted back ground; gold striped handles. Packed in heavy wood display box. Size of box, 14½ x 10½ in. **Per doz. sets, $36.00**

ENAMELED WROUGHT IRON SETS.

5329-20 Coffee Set. Combination blue and white enamel; five pieces sewed on card; 2 cups, 2 saucers and coffee pot. Size of box, 5½ x 8 in. ½ dozen sets in a pkg. **Per doz. sets, $2.00**

5330-20 Kitchen Set. Combination blue and white enamel; eight pieces sewed on card. Size of box, 6¼ x 8 in. ½ dozen sets in pkg
Per doz. sets, $2.00



5331-40 Kitchen Set. Combination blue and white enamel; ten pieces sewed on card. Size of box, 8 x 11 in. ¼ doz. sets in pkg. **Per doz. sets $4.00**

5333-45 Coffee Set. Light blue enamel; six pieces sewed on card; 2 cups, 2 saucers, coffee pot and creamer. Size of box, 7½ x 9½ in. ¼ dozen sets in pkg. **Per doz. sets, $4.50**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

All dolls come assorted colors and assorted designs to each number.

3455-105 Dressed Doll. Movable arms and legs, bisque head, closing eyes and curly hair, paper mache arms, sateen dress, two flounce skirt trimmed with lace edging, fancy silk ribbon belt, two flounce collar trimmed with lace edging, lace trimming on sleeves, ruffled hat with lace trimming to match dress, shoes and stockings. Height, 18 in. Each in box.
Per doz., $10.50

3459-120 Dressed Doll. Jointed arms, elbows, hips and knees, bisque head, closing eyes and curly hair, satin dress with silk shirred yoke, revers trimmed with lace and braid, silk ibbon belt with gilt ornament, large hat trimmed with lace and braid to match dress, stockings and shoes. Height, 20 in. Each in box.
Per doz., $12.00

3471-120 Dressed Doll. Jointed arms, elbows, hips and knees, bisque head, closing eyes and curly hair, satin dress trimmed with braid, blouse waist, large collar trimmed with lace and silk bows, lace yoke, lace hat trimmed with silk ribbons, stockings and shoes. Height, 19 in. Each in box.
Per doz., $12.00

3456-105 Dressed Boy Doll. Jointed arms, elbows, hips and knees, bisque head, closing eyes and Rembrandt hair, paper mache hands, pique sailor suit with gilt buttons, braid on sleeves, large ruffled collar trimmed with braid, hat trimmed with braid to match suit, shoes and stockings Height, 17½ in. Each in box.
Per doz., $10.50

3465-120 Dressed Doll Jointed arms, elbows hips and knees, bisque head, closing eyes and curly hair, silkoline dress with pleated yoke, collar trimmed with passementerie and ribbon rosettes, hat trimmed with chiffon to match dress, lace stockings and shoes. Height, 19½ in. Each in box.
Per doz., $12.00

3478-150 Dressed Doll. Imitation kid body with flexible hip and knee joints, bisque head, closing eyes and curly hair, paper mache arms, brocaded satin dress trimmed with silk braid, silk ribbon belt, ruffle collar trimmed with braid and China silk ruffle, hat trimmed with flowers, lace stockings and patent leather shoes. Height, 20 in. Each in box.
Per doz., $15.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

All dolls come assorted colors and assorted designs to each number.

3518-1500

3520-1750

3521-2250

3522-2500

3518-1500 Dressed Doll. Full jointed dressed doll with bisque head, closing eyes and curly hair, open mouth showing teeth, silk dress trimmed round bottom of skirt with fine quality of lace, blouse waist with lace yoke and lace collar, lace trimming on sleeves, silk hat neatly trimmed with fancy ribbon, silk flowers and leaves, lace stockings, shoes with rosettes. Height, 31 in. Each in box. **Per doz., $150.00**

3520-1750 Full jointed Dressed Doll. With beautiful bisque head, closing eyes and long curly hair, accordian pleated chiffon dress with three rows of ruffled silk, fancy ruffled collar trimmed with silk ornaments, large straw hat trimmed with flowers and chiffon to match dress, lace stockings and patent leather shoes with rosettes. Height, 30 in. Each in box. **Per doz., $175.00**

3521-2250 Full jointed Dressed Doll. With beautiful bisque head, closing eyes, parted and sewed wig with long curly hair, fine quality liberty satin dress with two rows of ruffled chiffon on skirt, blouse waist with large collar trimmed with two rows of chiffon, silk yoke trimmed with chiffon, satin hat trimmed with large silk bows, silk flowers and chiffon to match dress, fancy lace stockings, shoes with rosettes. Height, 34 in. Each in box. **Per doz., $225.00**

3522-2500 Full jointed Dressed Doll. With beautiful bisque head, closing eyes and curly hair, open mouth showing teeth, finest quality liberty satin dress with two rows of chiffon on front, flounce on skirt trimmed with two rows of chiffon, blouse waist with large collar trimmed with silk bows and two rows of chiffon, yoke and sleeves embroidered with silk, satin hat trimmed with large silk bows, silk flowers, leaves and chiffon edging, lace stockings and white kid shoes. Height, 38 in. Each in box **Per doz., $250.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.
All dolls come assorted colors and assorted designs to each number.

3480-150 Dressed Doll. Imitation kid body with flexible hip and knee joints, bisque head, closing eyes and curly hair, satin dress with lace trimming around bottom, allover lace collar trimmed with braid and silk ribbon bows, satin hat trimmed with flowers and lace, lace stockings and shoes. Height, 21 in. Each in box. **Per doz., $15.00**

3483-180 Dressed Doll. With jointed arms, elbows, hips and knees, bisque head, closing eyes and curly hair, satin dress trimmed with lace around bottom, collar and sleeves trimmed with lace, pleated yoke, hat trimmed with lace edging, shoes and stockings. Height, 20 in Each in a box. **Per doz., $18.00**

3492-240. Dressed Doll Jointed arms, elbows, wrists, hips and knees, figured organdie dress with ruffled flounce, collar trimmed with silk ribbon, lace trimming on sleeves, hat trimmed with lace to match dress, stockings and patent leather shoes. Height, 21 in. Each in a box. **Per doz., $24.00**

3482-180 Dressed Doll. With jointed arms, elbows, hips and knees, fine quality bisque head, closing eyes, curly hair, figured organdie dress with ruffled flounce trimmed with lace edging, collar trimmed with silk and lace, lace trimming on sleeves, large hat trimmed with two rows of lace, flowers and silk, shoes and stockings Height, 20 in. Each in a box **Per doz., $18.00**

3489-210 Dressed Doll. Kid body, figured voile dress, velvet cape trimmed with imitation fur and gilt buttons, blouse waist trimmed around neck with lace egding, hat trimmed with imitation fur and silk ribbons to match dress, lace stockings and shoes. Height, 20 in Each in a box. **Per doz., $21.00**

3495-270 Dressed Doll. Jointed arms, elbows, hips and knees, satin dress trimmed around bottom with silk dress trimming, box plait blouse waist with lace yoke, large collar trimmed with silk braid and lace, hat trimmed with feather and silk ribbon, bisque head, closing eyes and curly hair, shoes and stockings. Height, 23 in. Each in a box. **Per doz., $27.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

All dolls come assorted colors and assorted designs to each number.

3505-510 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, bisque head, closing eyes and curly hair, satin dress trimmed around bottom with fine quality lace, blouse waist trimmed with lace insertion, collar trimmed with lace and silk ribbons, lace trimming on sleeves, satin hat with under side completely covered with two rows of lace and silk flowers, stockings and patent leather shoes. Height, 23 in. Each in box.
Per doz., $51.00

3507-600 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, Swiss dress trimmed with two rows of lace, allover lace blouse waist, ruffled satin hat trimmed with chiffon and ostrich feathers, stockings and shoes, fine quality bisque head, with closing eyes and curly hair. Height, 27 in. Each in box.
Per doz., $60.00

3510-780 Full jointed Dressed Doll. Jointed arms, elbows, wrists, hips and knees, fine quality bisque head with closing eyes and long curly hair, fine quality liberty satin dress, plaited silk yoke, collar trimmed with fur, two flounce skirt trimmed with silk ruffles, fancy silk ribbon belt, liberty satin shirred hat trimmed with fur and silk ribbon bows, stockings and real patent leather shoes. Height, 25 in. Each in a box.
Per doz., $78.00

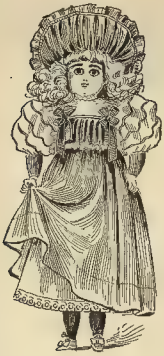
3511-780 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, finest quality bisque head, closing eyes and curly hair, organdie skirt trimmed with two rows of lace, large lace ruffle on yoke edged with ruffled chiffon, straw hat trimmed with cloth flowers and figured chiffon, shoes and stockings. Height, 29 in. Each in box.
Per doz., $78.00

3512-900 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, bisque head, closing eyes and curly hair, lace stockings, shoes with silk ribbon bows, silk dress with flounce on skirt trimmed with row of lace and chiffon edging, silk ribbon rosettes at waist, waist trimmed with lace insertion and chiffon, straw hat trimmed with large ostrich feathers and silk flowers and leaves. Height, 25 in. Each in box... **doz., $90.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

All dolls come assorted colors and assorted designs to each number.



3496-270 Dressed Doll. Jointed arms, elbows, hips and knees, fine quality bisque head, long curly hair, closing eyes, two-flounce organdie dress with lace edging and fancy silk ribbon, large straw and satin trimmed hat with ostrich feathers and chiffon, lace edged underclothing, shoes and stockings. Height, 23 in. Each in box. Per doz., $27.00

3499-300 Dressed Doll. Real kid body, bisque head, closing eyes and curly hair, bisque arms, lace stockings and patent leather shoes, brocaded satin dress trimmed with imitation fur and large ribbon bows, satin hat trimmed with imitation fur and silk ribbons to match dress, dotted veil over face. Height, 21½ in. Each in box.
Per doz., $30.00

3502-390 Dressed Doll. Jointed arms, elbows, hips and knees, fine quality bisque head, closing eyes and curly hair, brocaded satin dress neatly trimmed around bottom with lace, collar trimmed with lace and silk ribbon bows, lace trimming round sleeves, large hat trimmed with flowers and China silk, shoes and stockings. Height, 22 in. Each in box.
Per doz., $39.00

3497-302 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, bisque head, closing eyes and curly hair, fine quality dress goods with lace trimmed collar and yoke, lace trimming on sleeves, fancy ribbon belt, hat trimmed with flowers and China silk, lace stockings and patent leather shoes. Height, 21 in. Each in box. Per doz., $30.00

3500-360 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, fine quality bisque head, closing eyes and long curly hair, liberty satin dress with box pleats, fancy silk belt with gilt metal ornament, collar trimmed with imitation fur and silk braid, pleated satin yoke, liberty satin hat trimmed with imitation fur to match dress, stockings and patent leather shoes. Height, 23 in. Each in box.
Per doz., $36.00

3503-420 Dressed Doll. Jointed arms, elbows, hips and knees, bisque head, closing eyes and curly hair, lace stockings and shoes, liberty satin dress with three silk ornaments on skirt, box-pleated jacket trimmed with lace and passementerie, liberty satin hat trimmed with lace bow; silk flowers and lace edging Height, 24 in Each in box
Per doz., $42.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

All dolls come assorted colors and assorted designs to each number.

3514-1080

3515-1080

3516-1200

3517 1250

3514-1080 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, fine bisque head, closing eyes and curly hair, fine quality liberty satin dress trimmed with silk braid, China silk belt, blouse waist with China silk collar trimmed round neck and edge with silk braid, silk braid on sleeves, lace stockings and shoes, underwear trimmed with lace edging, satin hat trimmed with ostrich feathers and fancy silk ribbon bows Height, 30 in. Each in box.
Per doz., $108.00

3515-1080 Dressed Doll. Jointed arms, elbows, wrists, hips and knees, beautiful bisque head with closing eyes and long curly hair, figured organdie dress with flounce on skirt trimmed with embroidery, blouse waist trimmed with embroidery and fancy silk ribbon bows with gilt ornaments, lace gloves and stockings, shoes with fancy rosettes, ruffled hat trimmed with ostrich feathers and silk ribbon bows. Height, 30 in. Each in box. **Per doz., $108.00**

3516-1200 Full jointed Dressed Doll Fine bisque head, closing eyes and curly hair, finest quality liberty satin dress with flounce on skirt trimmed with lace edging, blouse waist made of combination chiffon and silk, trimmed with silk braid and metal ornaments, liberty satin hat trimmed with ostrich feathers and silk bows to match dress, lace stockings and shoes, lace edged underwear. Height, 30 in. Each in box.
Per doz., $120.00

3517-1250 Dressed Doll. Full jointed dressed doll with beautiful bisque head, closing eyes and curly hair, open mouth showing teeth, fine quality satin dress, two flounce skirt trimmed with lace edging, belt with metal ornament, blouse waist with figured silk front trimmed with silk braid, revers trimmed with silk braid and jet beads, lace edging on sleeves, large satin hat trimmed with imitation fur, flowers and silk bow, lace stockings, shoes with silk bows. Height, 30 in. Each in box. **Per doz., $125.00**

14-INCH X 6-FOOT HENDEY-NORTON LATHE.

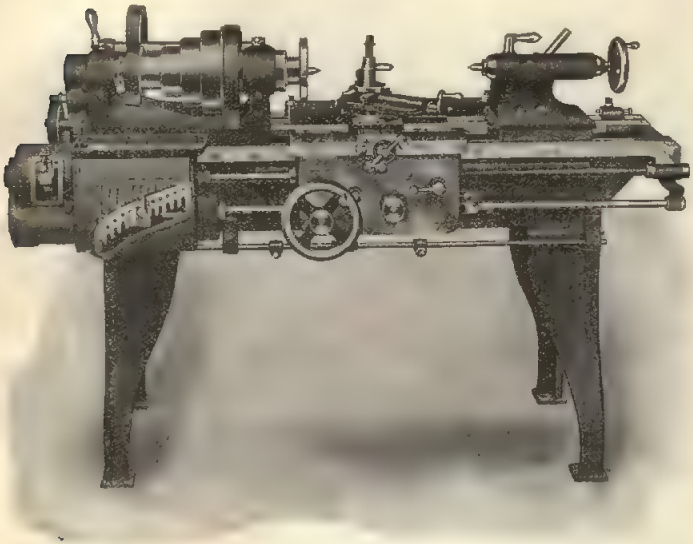


FIG 8438

GENERAL DIMENSIONS.

Proportion of Gearing in the Head.....8½ to 1.	Size of Pulleys on Countershaft, 12 inches diameter x 3½ inches face.
Cone Diameters.....8⅝, 5¾, 6⅝, 8¼ inches	Speeds of Countershaft 90 and 115 revolutions.
Width of Belt.....3 "	6-foot Lathe takes in between centers ...86 in.
Hole through the Spindle .....1 inch	Lengths of Bed .....5, 6, 7, 8, 10 and 12 feet
Front Bearing taper 2 in. to 2⅜ x 4⅛ in. long.	Swing over Plain Carriage.....8¼ inches.
Back Bearing taper 1⅝ in. to 2 x 3½ in. long.	Swing over Double Carriage.....6 inches.
Diameter of Tail Spindle.....1⅝ inches.	Tool Post takes Tool.....⅝ inch x 1 inch
Cuts Screws.....from 1⅜ to 80 per inch.	Capacity of center rest.....4 inches.
Feeds .....from 10½ to 560 per inch.	

Cross Feed Screw graduated to thousandths.

Lead screw, 6-pitch, worm thread.

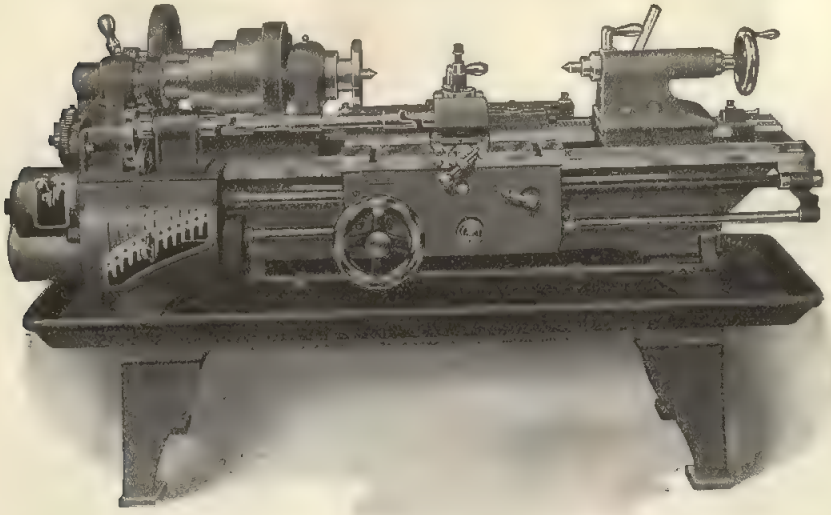
Nose of spindle is 2¼ inches diameter, having 6 U. S. Standard threads per inch.

Taper attachment turns 14 inches in length, and is arranged to give an angle of 15 degrees; both ends graduated, one in degrees, the other in inches.

Centers are made to Morse taper No. 2.

Center bushing for head spindle is made to Morse taper No. 4.

16-INCH x 6-FOOT HENDEY-NORTON LATHE ON OIL PAN.



YTS 2431

20-INCH X 8-FOOT HENDEY-NORTON LATHE.

GENERAL DIMENSIONS.

Proportion of Gearing in the Head.....12 to 1
Cone Diameters.....4¼, 7, 9¾ and 11½ inches
Width of Belt on the Cone.....3 inches
Hole through Spindle.....1⅝ inches
Front Bearing, taper...2⅝ in. to 3⅝x5⅝ in. long
Back Bearing, taper....2⅛ in. to 3¼x4⅛ in. long
Diameter of Tail Spindle.....2¼ inches
Lathe Cuts Screws.....from 1½ to 80 per inch

Feeds.....from 9 to 480 per inch
Size of Pulleys on Countershaft....16 in. x 4½ in.
Speeds of Countershaft... 90 and 120 revolutions
8-foot Lathe takes in between Centers..48 inches
Lengths of Bed..6, 7, 8, 10, 12, 14, 16, 18 and 20 feet
Swing over Carriage.....12¾ inches
Tool Post takes Tool.....⅝ inch x 1¼ inches
Capacity of Center Rest.....5¾ inches

Cross-feed Screw graduated to thousandths.

Lead screw, 6 pitch, worm thread.
Nose of spindle is 3¼ inches diameter, having 4 U. S. Standard threads per inch.
Taper attachment turns 20 inches in length, and is arranged to give an angle of 15 degrees; both ends graduated, one in degrees, the other in inches.
Centers are made to Morse taper No. 4.
Center bushing for head spindle is made to Morse taper No. 5.

24-INCH X 10-FOOT HENDEY-NORTON LATHE.

GENERAL DIMENSIONS.

Proportion of Gearing in the Head.....11½ to 1
Cone Diameters.....5⅝, 8¾, 11⅞ and 15 inches
Width of Belt.....3⅝ inches
Hole through Spindle.....1¾ inches
Front Bearing.....3¾ in. diam. x 6½ in. long
Back Bearing.....2⅝ in. diam. x 5 in. long
Diameter of Tail Spindle.....2¾ inches
Cuts Threads.....from 1 to 48 per inch

Feeds.....from 6 to 288 per inch
Size of Pulleys on Countershaft.....5x18 inches
Speeds of Countershaft....80 and 110 revolutions
10-foot Lathe takes in between Centers.5 ft. 4½ in.
Lengths of Bed .7, 8, 10, 12, 14, 16, 18, 20, 22 and 24 ft.
Swing over Carriage.....15⅝ inches
Tool Post takes Tool.....⅝ inch x 1¼ inches
Capacity of Center Rest.....8 inches

Cross-feed Screw graduated to thousandths.

Lead Screw, 4 pitch, worm thread.
Nose of spindle is 3⅛ inches diameter, having 4 U. S. Standard threads per inch.
Taper attachment turns 20 inches in length, and is arranged to give an angle of 15 degrees; both ends are graduated, one in degrees, the other in inches.
Centers are made to Morse taper No. 4½.
Center bushing for head spindle is made to Morse taper No. 6.

32-INCH X 12-FOOT HENDEY-NORTON LATHE.

Dimensions on application.

20-INCH x 8-FOOT HENDEY-NORTON LATHE.

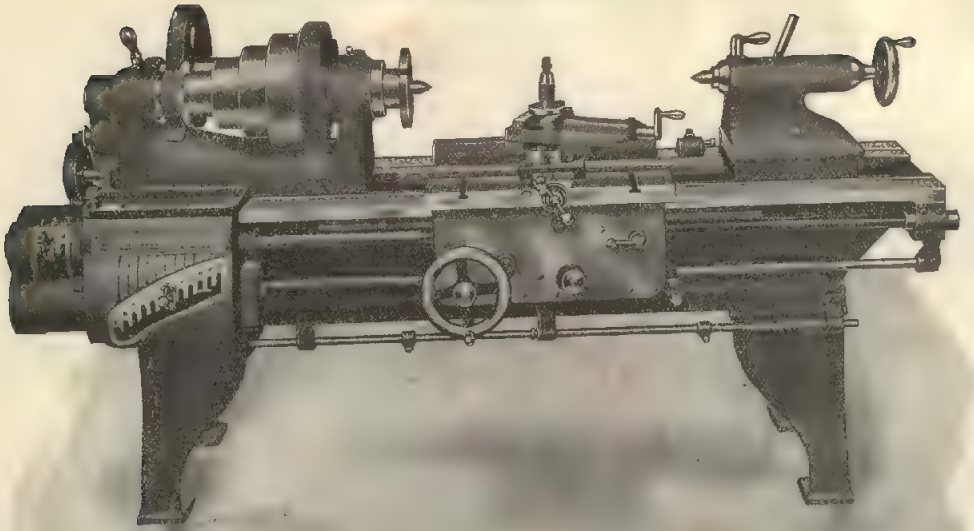


FIG. 2480.

16-INCH X 6-FOOT HENDEY-NORTON LATHE ON OIL PAN.

This Lathe is generally furnished with a set of 13 watch tool chucks having a capacity from ⅛ up to ¾ inch, Relieving Attachment and Taper Attachment in all creating a very complete lathe for tool-room and special work and installed where the 12 inch and 14-inch sizes are considered too small for the purpose.

GENERAL DIMENSIONS.

Proportion of Gearing in the Head	9 2 to 1.
Cone Diameters	4⅛, 6⅛, 8⅛, 10⅛.
Width of Belt	2½ inches.
Hole through the Spindle	1¼ inches.
Front Bearing, taper	2⅞ inches to 3¼ x 4⅝ inches long.
Back Bearing, taper	2¼ inches to 2¾ x 3⅞ inches long.
Diameter of Tail Spindle	2 inches.
Cuts Screws	from 1½ to 80 per inch.
Feeds	from 7½ to 400 per inch.
Size of Pulleys on Countershaft	14 inches in diameter x 4 inches face.
Speeds of Countershaft	90 and 115 revolutions.
6-foot Lathe takes in between Centers	30 inches.
Swing over Carriage	9¼ inches.
Lengths of Bed	6, 7, 8, 10, 12 and 13 feet.
Tool Post takes Tool	⅝ inch x 1 inch.
Capacity of Center Rest	4½ inches.

Cross-feed Screw graduated to thousandths.

Lead Screw, 6 pitch, worm thread.

Nose of spindle is 2½ inches diameter, having 6 U. S. Standard threads per inch.

Taper attachment turns 18 inches in length, and is arranged to give an angle of 15 degrees; both ends graduated, one in degrees, the other in inches.

Centers are made to Morse taper No. 3.

Center bushing for head spindle is made to Morse taper No. 4½.

18-INCH X 8-FOOT HENDEY-NORTON LATHE.

GENERAL DIMENSIONS.

Proportion of Gearing in the Head	10,7 to 1.
Cone Diameters	4¼, 6½, 8¾, and 11 inches.
Width of Belt on the Cone	3 inches.
Hole through Spindle	1⅝ inch.
Front Bearing, taper	2⅞ inches to 3⅞ x 5⅛ inches long.
Back Bearing, taper	2⅝ inches to 3⅛ x 3⅞ inches long.
Diameter of Tail Spindle	3 inches.
Lathe Cuts Screws	from 1½ to 80 per inch.
Feeds	from 7½ to 400 per inch.
Size of Pulleys on Countershaft	14 inches x 4 inches.
Speeds of Countershaft	100 and 140 revolutions.
8-foot Lathe takes in between Centers	34 inches.
Lengths of Bed	6, 7, 8, 10, 12, 14 and 16 feet.
Swing over Carriage	11 inches.
Tool Post takes Tool	⅝ inch x 1 inch.
Capacity Center Rest	5 inches.

Cross-feed Screw graduated to thousandths.

Lead screw, 6 pitch, worm thread.

Nose of spindle is 2¾ inches diameter, having 5 U. S. Standard threads per inch.

Taper attachment turns 18 inches in length, and is arranged to give an angle of 15 degrees; both ends graduated, one in degrees, the other in inches.

Centers are made to Morse taper No. 3.

Center bushing for head spindle is made to Morse taper No. 5.

ELECTRIC MOTOR-DRIVEN HENDEY-NORTON ENGINE LATHES.

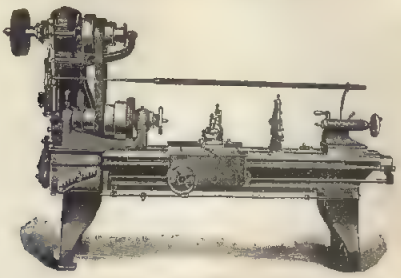


FIG. 2429

The Electric Motor Drive gives all the advantages to be had from rigid countershaft drive. It will be noticed that the motor is of the back-gear type. Carried on the end of the commutator shaft are two rawhide pinions of different diameters, driving two large gears on the countershaft of the motor, the gearing being properly proportioned to give the required driving speeds to the countershaft. These large gears run smoothly on the shaft. Their inner construction is that of the friction clutch pulleys used on Hendey shapers, and carried between them, keyed to but sliding on the shaft, is a friction clutch, which is thrown into connection with either gear as desired, being operated by the depending shipper and handle extended back and supported in ring at the end of the lathe, as shown. The clutch is also fitted with the usual locking spring and point. We thus have two speeds for the countershaft affording the 16 changes for the lathe spindle. These are accomplished with motor running at constant speed, thus maintaining its maximum efficiency at all times.

Our reversing device for carriage, operated at the side of the apron, which allows the spindle to run in the one direction, dispenses with the necessity of wiring the motor for backward drive, an item of expense and complication which is avoided.

The standard carrying the motor is rigidly bolted to the lathe bed, and being strongly webbed, is free from any disturbing vibration. The motor is directly attached to a hinged plate on top of the standard. At the front end of the plate there is carried a short-throw cam which allows the plate a slight drop and consequent loosening of the belt when it is desired to shift from one step of cone to another. The cam rides upon adjustable posts which afford a means of taking up any slight stretch occurring in belt. The motor back-gear shaft is supported at pulley end with an out board bearing, which prevents any springing of shaft when belt is used on the smallest steps of the cone.

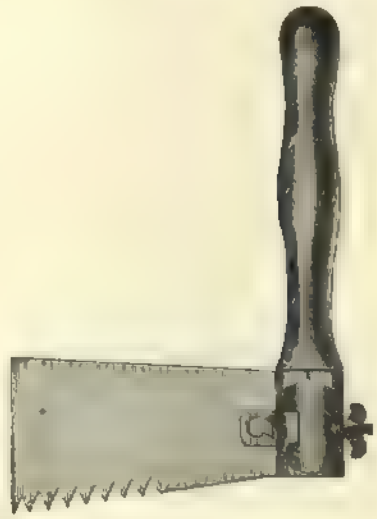
We are prepared to furnish these lathes complete with the motors and all necessary attachments, or if customers prefer to furnish motor it will be necessary that they secure one with suitable base and brackets for back geared shaft, and which will have to be arranged to carry our standard sizes of countershafts as designed for these motors.

HORSE-POWER OF MOTORS REQUIRED FOR THE SEVERAL SIZES OF LATHES.

Size of Lathe	12-inch	14-inch	16-inch	18-inch	20-inch	24-inch	32-inch
Horse-power of Motor	1	1½	2	2	2	3	3

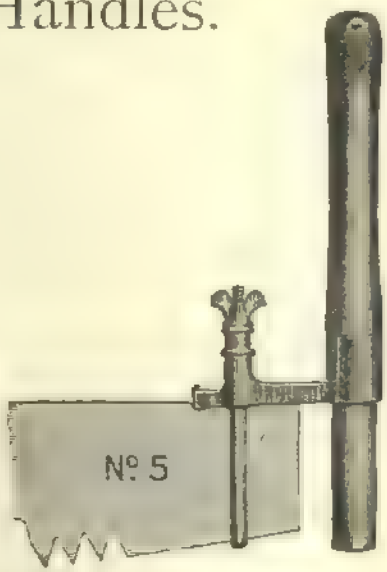
Inquiries for delivery of lathe should be accompanied with voltage of motor. This ordinarily is 110 or 220

Cross Cut Saw Handles.



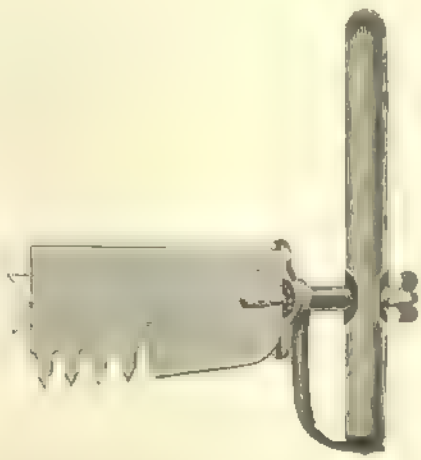
Code Ajurguess. Per Pair
No. 2—Climax, ... $0.35
Weight, 1½ lbs. Per Pair.

Code Ajuratiba.
No. 12—Climax, Extra Heavy, . . .50
Weight 2¼ lbs. Per Pair.



Code Ajustadas. Per Pair
No. 5—Wrought Loop, ... $0.50
Weight, 1½ lbs. Per Pair.

Code Ajustetr. Per Pair
No. 7—Wrought Loop. $0.60
Weight 2¼ lbs. Per Pair



Code Ajusto. Per Pair
No. 15—Universal Adjustable to any Angle. $1.40
Weight, 2 lbs. Per Pair

One Man, Cross Cut.

Code Ajutoirs. Per Dozen
No. 1—For Champion Saws, ... $4.50
Weight, 7 lbs. Per Dozen.

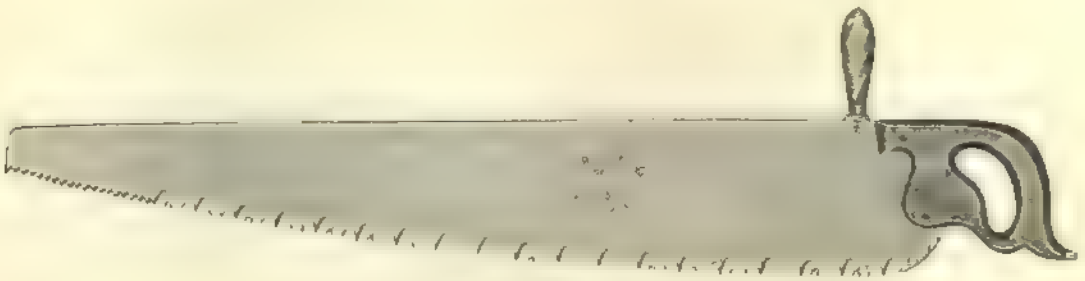
Code Akademie.
No. 10—For Great American Saws, . 6.00
Weight, 7 lbs. Per Dozen.

Supplementary.

Code Akaroa. Per Dozen
No. 30 For Disston's One Man Saws. . $2.40
Weight, 3 lbs. Per Dozen.

Half Dozen in a Box.

One Man Cross Cut Saws.



No. 1—Lightning, Champion Tooth.

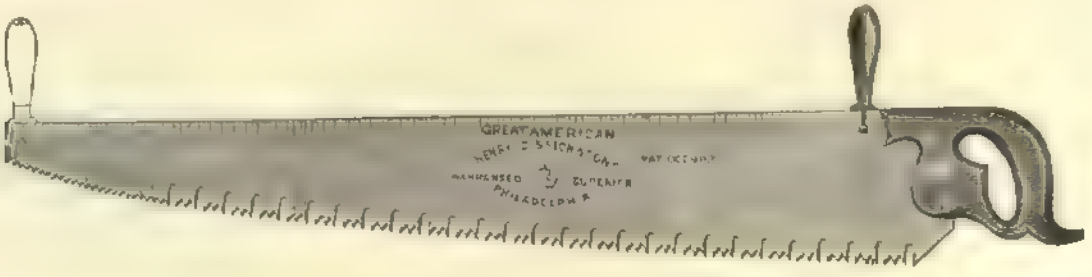
Feet,	3½	4	4½	5	5½
Code	Ajotarels.	Ajeujado.	Ajeupa.	Ajournals.	Ajournant
Weight Each, lbs,	4	5	6	7	8
Each, with Handles,	$2 60	3.00	3.33	3.70	4.10

No. 3—Disston's, Champion Tooth.

Feet,	3½	4	4½	5	5½
Code	Ajouve.	Ajudisdas.	Ajudiado.	Ajugam.	Ajugarum.
Weight Each, lbs.,	4	5	6	7	8
Each, with Handles,	$3.40	3.90	4.35	4.85	5.35

No. 5—Disston's, Perforated Lance Tooth.

Feet,	3½	4	4½	5	5½
Code	Ajuicin.	Ajcin.	Ajuinbed.	Ajuinbind.	Ajuinbol.
Weight Each, lbs.,	4¼	5½	6½	7	8
Each, with Handles,	$2.85	3 25	3 65	4.10	4.55



No. 6—Disston's, Great American.

Feet,	3½	4	4½	5	5½
Code	Ajuzur.	Ajuncaba.	Ajunear.	Ajuncaron.	Ajunjera.
Weight Each, lbs.,	4	5	6	7	8
Each, with Handles,	$2.85	3.25	3.65	4.10	4.55

Quarter Dozen in a Package.

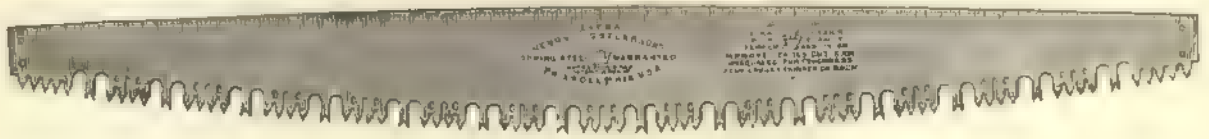
Cross Cut Saws.

Henry Disston & Sons.

International.

Extra Cast Steel, Thin Back, 11 Gauge on Teeth, 16 Gauge on Back.

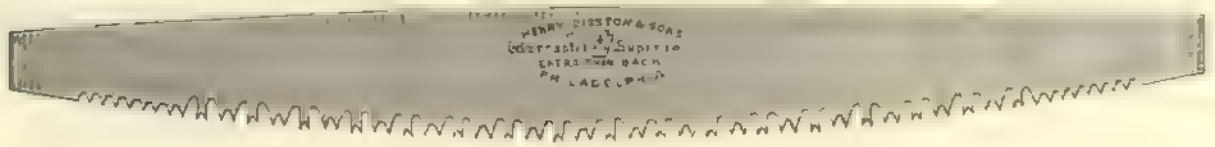
Feet,	6	6½	7	7½	8
Code	Alsmemis	Alsauque	Alsclo	Alstuff.	Alchibone
Weight Each, lbs.,	9	10½	11	13	14½
Each,	$7.50	8.13	8.75	9.38	10.00



Perforated Lance Tooth.

Extra Cast Steel, Thin Back, 14 Gauge on Teeth, 18 Gauge on Back.

Feet,	5½	6	6½	7
Code	Alcoals.	Alcalois.	Alcamole	Alcaro.
Weight Each, lbs.,	6	7½	8¾	9¾
Each,	$3.74	4.08	4.42	4.76



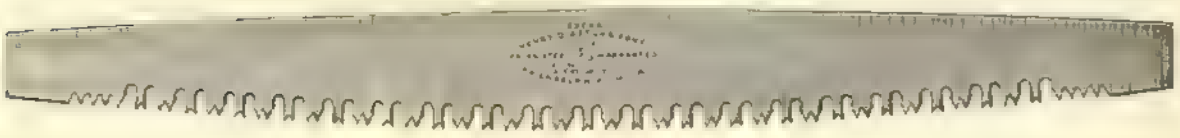
No. 1—Champion Tooth.

Extra Cast Steel, Thin Back, 14 Gauge on Teeth, 18 Gauge on Back.

Feet,	4½	5	5½	6	6½	7
Code	Alutando.	Alutativo.	Alutatore	Alutevole	Alxois.	Alxolenin.
Weight Each, lbs.,	4	5	6	7	8	9
Each,	$2.70	3.00	3.30	3.60	3.90	4.20

Cross Cut Saws.

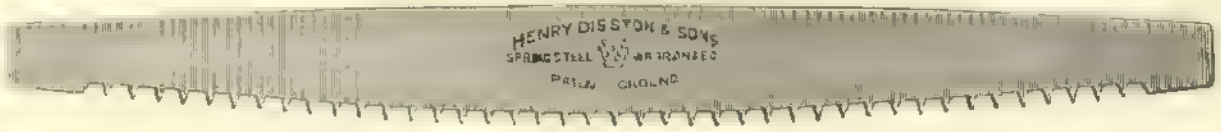
Henry Disston & Sons.



No. 1—Tuttle Tooth.

Extra Cast Steel, Thin Back, 14 Gauge on Teeth, 18 Gauge on Back.

Feet,	5	5½	6	6½	7
Code	Atuzatore.	Aizzosa.	Ajalaruus.	Ajalc.	Ajabebas.
Weight Each, lbs.,	6	6¾	7	8	9
Each,	$3.00	3.30	3.60	3.90	4.20



No. 1—Plain Tooth.

Extra Cast Steel, Thin Back, 14 Gauge on Teeth, 18 Gauge on Back.

Feet,	4½	5	5½	6
Code	Ajamaran.	Ajamasels.	Ajamos.	Ajando.
Weight Each, lbs.,	4¾	5¼	6⅜	7
Each,	$2.84	3.15	3.46	3.78

Narrow Cross Cut Saws.

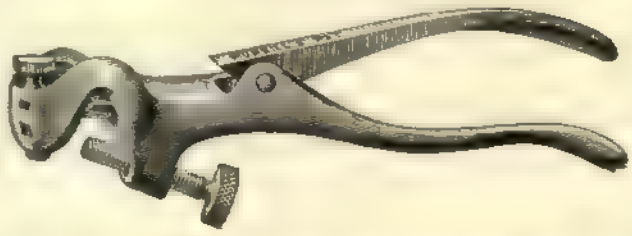
Bishop's.

Champion Tooth, Cast Steel, Hollow Back.

Feet,	6
Code	Ajoben.
Weight Each, lbs.,	4½
Each,	$2.16

Saw Sets.

Code Akenside. Per Dozen
No. 101—Morrill's Pattern, for Hand, Band and Jig Saws, ... $12 00
Weight, 8 lbs. Per Dozen.



Code Akerene. Per Dozen
No. 1—Morrill's Improved, Steel Jaw, for Hand, Band and Jig Saws, from the Widest Made down to ½ In., ... $15.00
Weight, 12 lbs. Per Dozen.

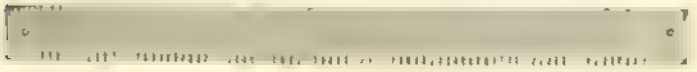
Code Akertje. Per Dozen
No. 11—Morrill's Improved Steel Jaw, for Hand, Band and Jig Saws, from the Widest Made down to ½ In., ... $16.00
Weight, 13½ lbs. Per Dozen

Code Aketons. Per Dozen
No. 95—Morrill's Perfect, Hand, ... $16 00
Weight, 12 lbs. Per Dozen.

The Revolving Anvil with Indicator sub-divided and Marked with figures, the figures showing the number of teeth to the inch in the saw to be set. Lever Set Screw so saw will pass through without friction. If for fine work turn the Set Screw to suit your own judgment otherwise [illegible]

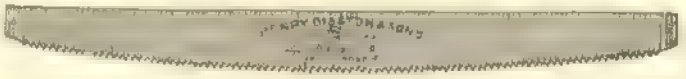
Code Akimbo. Per Dozen
No. 3—Morrill's Perfect, for Single Tooth Cross Cut and Small Circular Saws, 14 to 20 Gauge, $22 00
Code Akindschi
No. 4—Morrill's Perfect, for Champion or M Tooth Saws, 6 to 14 Gauge 22 00
Weight, 17 lbs. Per Dozen.
Half Dozen in a Box.

Wood Saw Blades.



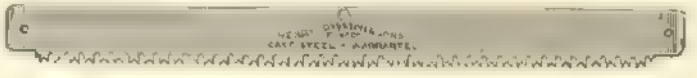
Code Alrain.
No. 0—Defiance, Cast Steel, Straight Breasted, ... Per Dozen $3.00
Weight, 7 lbs. Per Dozen.

Code Alreadoe.
No. 5½—Defiance, Champion Tooth, Cast Steel, Blued, Straight Breasted, ... $6.00
Weight, 7 lbs. Per Dozen.

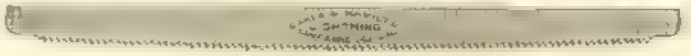


Code Alrearian.
No. 6—Disston's, Cast Steel, Bright, Round Breasted, ... Per Dozen $7.50
Weight, 5¼ lbs. Per Dozen.

Code Alrfly
No. 44—Bishop's, Truss Frame, Cast Steel, Bright, Round Breasted, ... Per Dozen $7.50
Weight, 4 lbs. Per Dozen.



Code Alrojais.
No. 77—Disston's, Climax Tooth, Cast Steel, Bright, Straight Breasted, ... Per Dozen $8.25
Weight, 7¾ lbs. Per Dozen.



Code Alrokilad.
No. 600—Lightning, Cast Steel, Blued, Round Breasted, ... Per Dozen $6.50
Weight, 7 lbs. Per Dozen.

Wood Saw Rods.

Code Alsladons.
No. 11—Clipper, 22 In., Malleable Swivel, Bright Finish, ... Per Dozen $1.50
Weight, 6 lbs. Per Dozen.

Code Alslare.
No. 5—Ajax Swivel, 22 In., Extra Heavy, Tinned Rod and Loops, ... Per Dozen $2.50
Weight, 9 lbs. Per Dozen.

One Dozen in a Package

Laib Co.
400
Louisville Ky.

STEAM ENGINES AND BOILERS.

Semi-Portable Engine and Boiler.

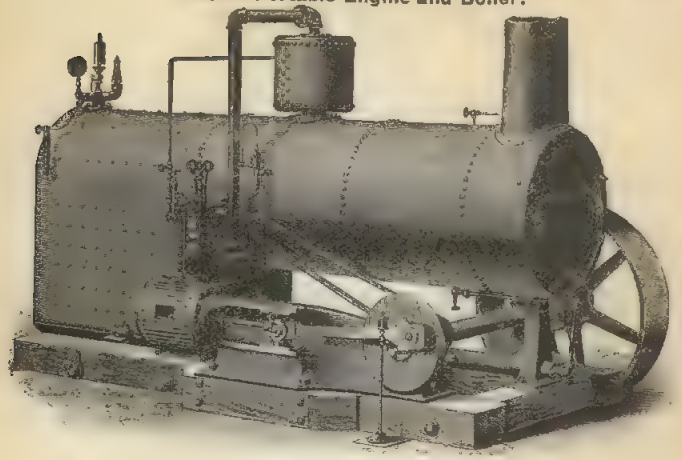


FIG 1052.

Number.	Horse Power.	Cylinder, Diameter and Stroke, Inches	Band Wheel.		Revolutions per Minute.	Diameter of Boiler, Inches.	Length of Fire Box, Inches.	Width of Fire Box, Inches.	Height of Fire Box Above Grates, Inches.	Number and Diameter of Tubes.	Length of Tubes, Inches.	Weight, Pounds.
			Diameter, Inches.	Face, Inches.								
330	15	7x10	40	8¾	240	30	42	25	21	32–2¼	72	5700
331	20	8x10	44	10½	240	33	44	28	26	41–2¼	84	7200
332	25	9x12	48	12¼	220	36	48	31	28	51–2¼	84	9200
333	30	10x12	54	12¼	220	36	54	31	31	43–2⅝	108	10000
334	35	10x14	60	14½	200	40	54	35	33	53–2⅝	108	11700
335	40	11x14	66	14½	200	42	54	37	35	61–2⅝	108	12800
336	50	12x16	72	16½	180	44	60	39	37	77–2¼	108	15500

Engine complete as shown.

Firebox boiler mounted on skids by cast-iron supports, cast-iron fire and ash doors, cast-iron smokehead and smokehead door, and cast-iron stack saddle, dome, grates, grate bearing bar, safety valve (pop valve used on the four smallest sizes) steam gauge and siphon, glass water gauge, gauge cocks, whistle, blow-off cock, check valve, stop valve, and smoke stack with guys.

Injector, with pipes and valves for connecting to boiler.

Heater, for heating the feed water as it passes from the injector into the boiler.

Steam pipe to connect engine and boiler and connections for leading the exhaust from the engine to the stack.

Laib Co.
401
Louisville Ky.

STEAM ENGINES.

Detached Center Crank Engine.

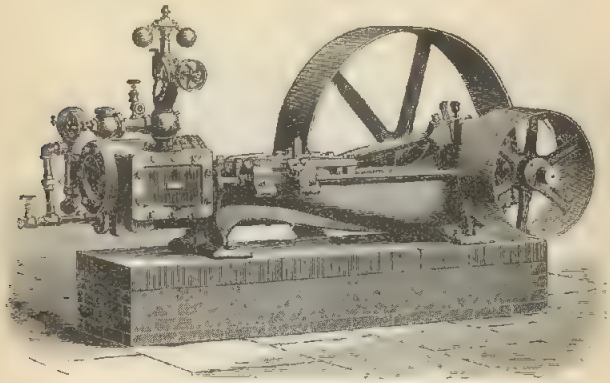


FIG. 1053.

Horse Power.	Cylinder, Inches.	Diameter of Pulleys, Inches.	Face of Pulleys, Inches.	Governor, Inches.	Revolutions, Per Minute.	Weight, Pounds.
6	4 x 6	14 and 26	6½	1	260	650
8	5 x 8	14 and 32	10½ and 8½	1¼	240	900
9	6 x 9	16 and 36	10½ and 9½	1½	200	1200
10	7 x 9	16 and 36	10½ and 9½	1½	200	1300
12	7 x 10	20 and 44	10½	1½	190	1600
15	8 x 10	20 and 44	10½	2	190	1700
20	8 x 12	22 and 48	10½ and 12½	2	190	2400

Prices on application.

The fixtures with each engine are governor, throttle, pulleys, pump, heater, oil cups, cylinder and pet cocks.

Laib Co.
402
Louisville Ky.

STEAM ENGINES.

Horizontal Center Crank Engine.

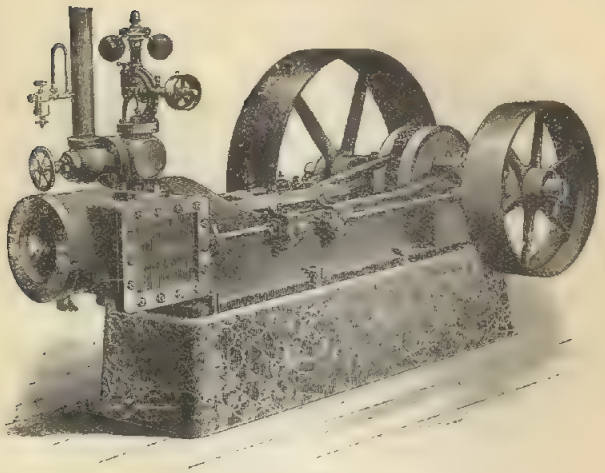


FIG. 1054.

Horse Power.	Cylinder, Inches.	Diameter of Pulleys, Inches.	Face of Pulleys, Inches.	Governor, Inches.	Revolutions per Minute.	Weight, Pounds.
8	5x 8	14 and 32	7½ and 8½	1½	300	1000
12	6x 8	16 and 36	7½ and 9½	1½	300	1200
15	7x10	20 and 44	8½ and 9½	2	275	1700
20	8x10	20 and 44	8½ and 10½	2½	275	2000
30	9x12	32 and 48	8½ and 12½	2½	250	3000
40	10x12	32 and 54	8½ and 12½	3	250	3300
45	10x15	36 and 60	9½ and 12½	3	200	4300
50	11x15	36 and 60	9½ and 12½	3½	200	4900
55	12x15	36 and 60	9½ and 14½	3½	200	5300
60	12x16	36 and 60	9½ and 14½	3½	190	5500
70	13x16	36 and 72	9½ and 14½	4	180	7000
80	14x16	36 and 72	9½ and 16½	4	180	7800
100	15x16	36 and 72	12½ and 16½	4	175	9000
125	16 18	48 and 78	12½ and 16½	4½	165	11000

Prices on application.

The governor, throttle, pulleys, lubricator, oil cups and cylinder cocks are considered parts of the engine and are included in the regular price.

Laib Co.
403
Louisville Ky.

STEAM ENGINES.

Horizontal Center Crank Engine

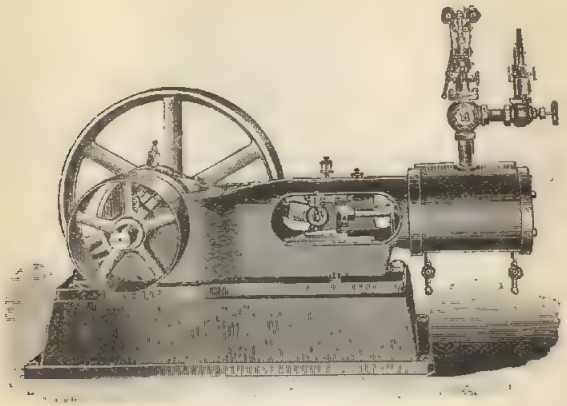


FIG. 1055.

Horse Power.	Price Complete, Each.	Price of Foundation Bolts and Washers, Per Set.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches	Diameter of Shaft, Inches.	Fly Wheel, Inches.	Diameter and Face of Pulley, Inches.	Revolutions, Per Minute.	Length over all, Inches	Width Across Crank, Inches.	Weight Less Sub-Base, Pounds.	Weight with Sub-Base, Pounds.
8	260.00	5.00	6x8	$1\frac{1}{4}$	1	$2\frac{5}{8}$	32x6	14x7	225	68	38	1100	1400
10	300.00	6.00	7x9	$1\frac{1}{2}$	2	$2\frac{1}{16}$	36x7	16x7½	210	74	44	1500	1900
15	360.00	7.00	8x10	2	$2\frac{1}{2}$	$2\frac{1}{16}$	40x8	18x8	190	86	50	2000	2500
20	430.00	8.00	9x11	2	$2\frac{1}{2}$	$3\frac{1}{4}$	44x9	20x10	180	$88\frac{1}{2}$	54	2700	3300
25	500.00	9.00	10x12	$2\frac{1}{2}$	3	$3\frac{1}{4}$	48x10	24x12	160	$99\frac{1}{2}$	60	3400	4100

Laib Co.
404
Louisville Ky.

STEAM ENGINES.

Self Contained Throttling Engine.

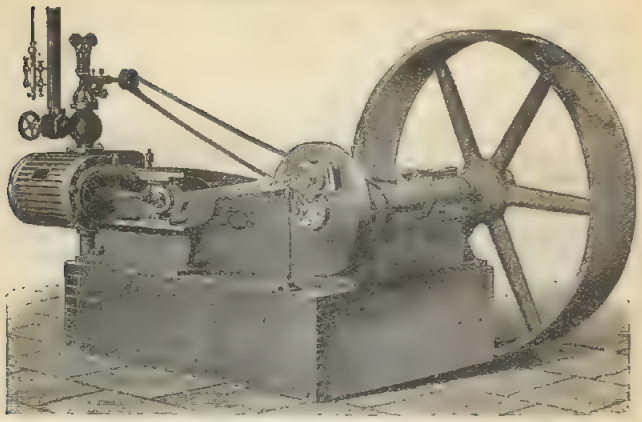


FIG. 1056.

Horse Power.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches.	Diameter of Main Shaft, Inches.	Length of Main Shaft, Inches.	Diameter of Band Wheel, Inches.	Face of Band Wheel, Inches.	Revolutions per Minute.	Length, Feet and Inches.	Width, Feet and Inches.	Weight, Pounds.
15	7x10	2	2½	3	44	40	8½	240	6- 7	4- 5	1600
20	8x10	2	3	3	44	44	10½	240	6- 9	4- 5	1750
25	9x12	2½	3	4	54	48	12½	220	7-10	5- 4	2950
30	10x12	2½	3½	4	54	54	12½	220	8- 1	5- 4	3200
35	10x14	3	3½	4½	60	60	14½	200	9- 4	5-10	3800
40	11x14	3	4	4¾	60	66	14½	200	9- 7	5-10	4000
50	12x16	3½	4	5	66	72	16½	180	10- 8	6- 5	5400
60	13x16	3½	4½	5½	66	78	16½	180	10 11	6- 5	5700
80	14x18	4	5	6	76	84	18½	160	12- 3	7- 4	7800
100	16x20	4½	6	7	88	90	20½	140	13- 8	8- 4	11000
125	18x22	5	6	8	102	96	24½	120	14 10	9 10	14500

Prices on application.

The horse-power given is at speeds named and 80 pounds steam pressure.

The fixtures included with each engine are: Band wheel, governor, throttle valve, sight-feed cylinder lubricator and connections, oil cups, drain cocks, spanner wrench, governor belt, ball and stand oiler for wrist, wipe oiler for crosshead, and drip oiler for eccentric.

This type of engine is furnished either right or left hand.

All standard engines are made self-contained, with the exception of the 18x22 size, which is made with detached outboard bearing for convenience in shipping and handling. See illustration, Page 405.

Laib Co.
405
Louisville Ky

STEAM ENGINES.

Throttling Engine with Detached Outboard Bearing.

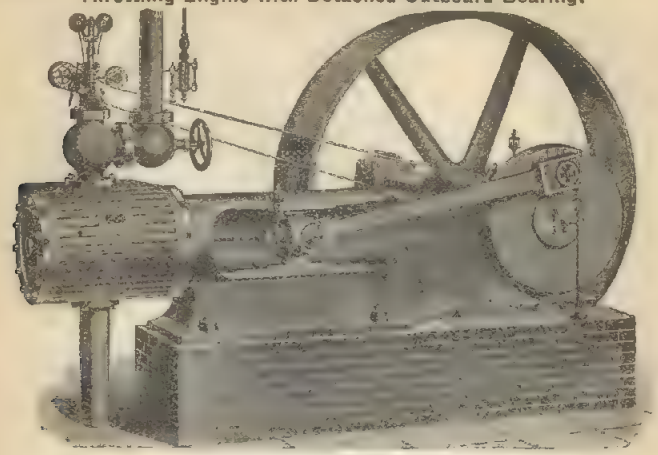


FIG. 1057.

For Specifications, see page 404.

Table of Horse Power for Different Speeds and Pressure of Steam.

THE POWERS OF DOUBLE ENGINES ARE DOUBLE THESE AMOUNTS.

SEE ENGINES ON PAGE 406.

Size of Engine Cylinder.. ..in.	7 x 10			8 x 10			9 x 12			10 x 12		
Revolutions per Minute...	220	240	260	220	240	260	200	220	240	200	220	240
Horse Power with 80 lbs. steam	14	15	16	18	20	22	23	25	27	27	30	33
Horse Power with 90 lbs. steam	16	17	18	20	22	24	26	28	30	31	34	37
Horse Power with 100 lbs. steam	18	19	20	22	24	26	29	31	33	35	38	41

Size of Engine Cylinder ..in.	10 x 14			11 x 14			12 x 16			13 x 16		
Revolutions per Minute	180	200	220	180	200	220	160	180	200	160	180	200
Horse Power with 80 lbs. steam	32	35	38	36	40	44	44	50	56	53	60	67
Horse Power with 90 lbs. steam	35	39	43	41	45	49	50	56	62	59	67	75
Horse Power with 100 lbs. steam	38	43	48	46	50	54	56	62	68	65	74	83

Size of Engine Cylinder.....in.	14 x 18				16 x 20				18 x 22			
Revolutions per Minute	140	160	180	200	120	140	160	180	100	120	140	160
Horse Power with 80 lbs. steam	70	80	90	100	85	100	115	130	104	125	146	167
Horse Power with 90 lbs. steam	80	90	100	110	96	113	129	145	117	140	164	188
Horse Power with 100 lbs. steam	90	100	110	120	107	125	143	160	130	155	182	209

The above table shows the changes in power that may be obtained by a change in steam pressure or speed. The port area of the engines are such that the piston speed can be increased up to 600 feet without prejudice to their satisfactory running.

Laib Co.
406
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STEAM ENGINES.

Double Engine with Reversing Valve Gear.

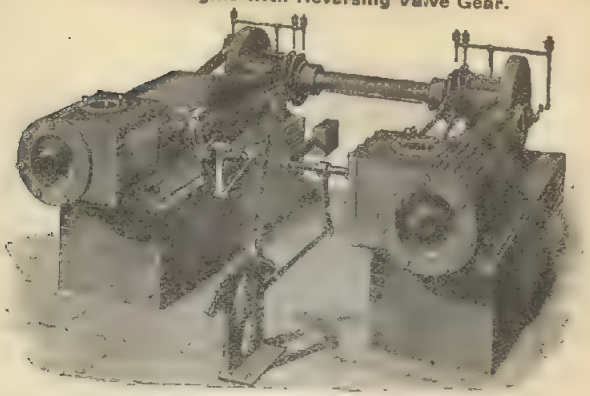

FIG. 1058.

Horse Power.	Cylinder, Inches	Steam Pipe, Inches.	Exhaust Pipe, Inches	Diameter of Main Shaft, Inches.	Length of Main Shaft, Inches.	Length Between Eccentrics, Inches.	Diameter of Band Wheel Inches.	Face of Band Wheel, Inches.	Revolutions per Minute.	Length in Feet and Inches.	Width in Feet and Inches.	Weight, Pounds.
30	7x10	2½	3	3 3/16	59	33	40	14½	240	6 7	6- 4	2700
40	8x10	2½	3	3 3/16	59	33	44	16½	240	6 9	6 4	3000
50	9x12	3	3½	4 3/16	69	37	48	18½	220	7 10	7- 4	4900
60	10x12	3½	3½	4 3/16	69	37	54	18½	220	8- 1	7 4	5400
70	10x14	3½	4½	4 3/16	75	40	60	20½	200	9- 4	8- 0	6200
80	11x14	4	4½	4 3/16	75	40	66	20½	200	9- 7	8 0	6600
100	12x16	4	5	5 3/16	81	43	72	23	180	10 8	8- 7	8700
120	13x16	4½	5	5 3/16	81	43	78	23	180	10 11	8- 7	9000
160	14x18	5	6	6 3/16	91	48	84	27	160	12- 3	9- 6	12600
200	16x20	6	7	7 3/16	103	53½	90	29	140	13 8	10-10	18000
250	18x22	7	7	8 3/16	117	59½	96	31	120	14 10	12- 1	23000

Prices on application.

The fixtures included with each double engine are: Band wheel made in halves, governor, main throttle valve for governor, cross steam pipes to connect each cylinder, separate stop valve over each cylinder, sight feed cylinder lubricator and connections, ball and stand oilers for wrists, wipe oilers for crossheads, drip oilers for eccentrics, oil cups, drain cocks, spanner wrench and governor belt.

Governors having automatic stops are supplied on all double engines of 80-horse power and larger. A narrow rimmed fly wheel, made in halves, may be substituted for band wheel without extra cost. In such case, the belt pulleys, if wanted, will be charged for extra.

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407
Louisville Ky.

STEAM ENGINES.

Automatic High Speed Engine.

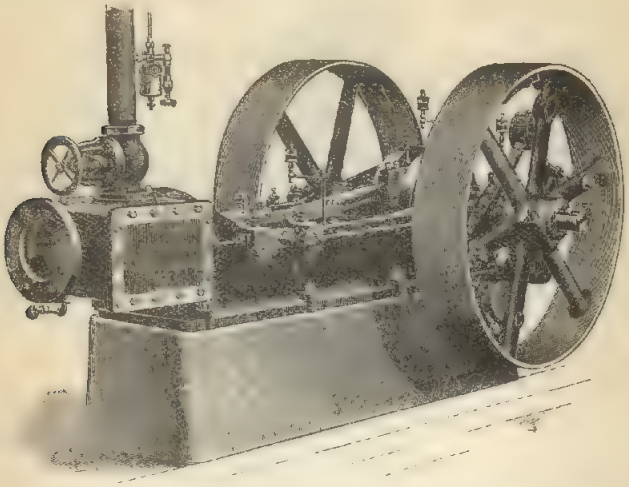

FIG 1059.

Horse Power at 35 Pounds M. E. P. and ¼ cut off.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches.	Diameter of Pulleys, Inches.	Face of Pulleys, Inches.	Revolutions per Minute.	Weight, Pounds.
10	5x 8	1¼	2	36	5½	375	1300
15	6x 8	1½	2	36	6½	375	1600
20	7x10	2½	3	42	7½	325	2300
25	8x10	2½	3	42	8½	325	2500
40	9x12	3	3½	48	8½	300	3900
50	10x12	3½	4	48	10½	300	4300
60	10x15	3½	4	54	10½	260	5200
70	11x15	4	4½	54	10½	250	5800
75	12x15	4	4½	54	12½	250	6700
80	12x16	4	4½	60	12½	240	8400
90	13x16	4½	5	60	12½	230	9200
100	14x16	4½	5	60	14½	225	10200
110	15x16	5	6	60	16½	220	11600
130	16x18	6	7	72	16½	200	14300

Prices on application.

Each engine is furnished with throttle, lubricator, pulleys, oil cups and automatic oil device for crank pins, cross head and eccentric.

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408
Louisville Ky.

STEAM ENGINES.

Center Crank Engine.

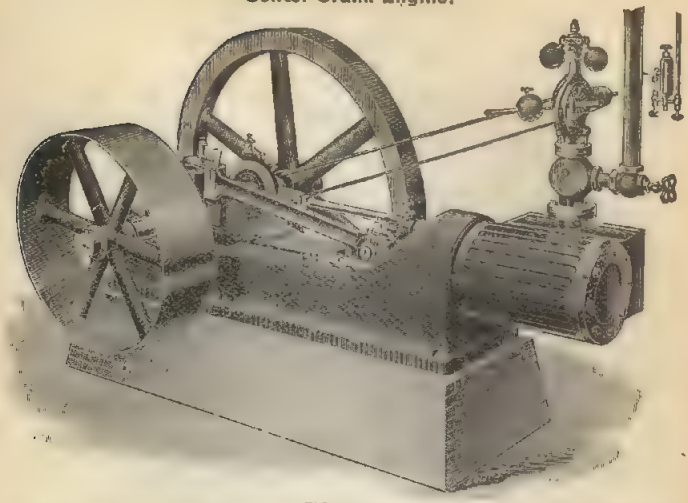

FIG. 1060.

Horse Power.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches.	Diameter of Crank Shaft, Inches.	Diameter and Face of Band Wheel, Inches.	Diameter and Face of Drive Pulley, Inches.	Diameter of Square Rim Fly Wheel, Inches.	Revolutions per Minute.	Floor Space Required, Inches.	Weight, Pounds
9	6x 9	1¼	2	2¼	36x 6	20x 8	.....	175	74x41	1300
12	7x 9	1½	2½	2½	42x 6	24x 8	.....	175	77x41	1600
18	8x13	2	2½	3⅛	.....	30x10	60	175	109x55	3100
25	9x13	2	3	3⅜	.....	36x10	60	175	109x55	3600
30	10x13	2	3	3⅞	.....	36x12	60	175	109x55	3900
40	11x14	2½	3½	4⅜	54x14	36x12	.....	175	115x74	5500
50	12x14	3	4	4⅞	54x14	36x14	.....	175	115x74	5800

The Fly-Wheel and Drive Pulley can be used on either side of engine. When so desired we will furnish a 54-inch diameter Band Pulley in place of Square Rim Fly-Wheel without extra charge. There are included with above engine the following: Fly-Wheel, Drive Pulley, Automatic Stop Motion Governor, Governor Belt, Throttle Valve, Oil Can, Oil Cups, Sight-Feed Cylinder Lubricator with connections, Wrench and Foundation Plans.

Steam, Water and Exhaust Connections and Foundation Bolts are Extra, and an additional charge will be made for them.

Laib Co.
409
Louisville Ky

STEAM ENGINES.

Side Crank Engine.

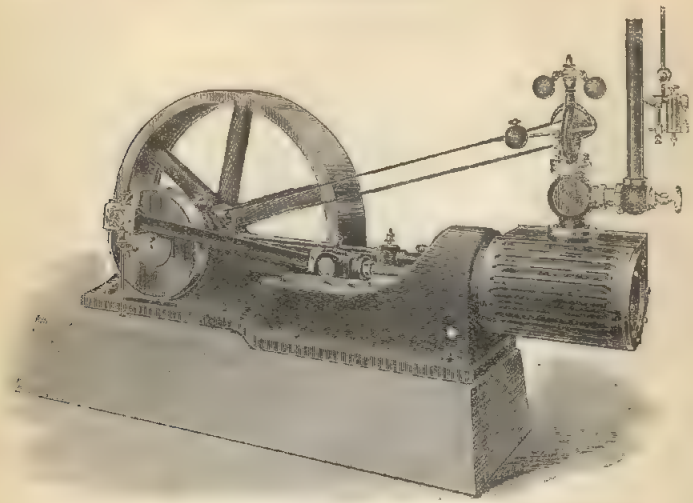

FIG. 1061.

Horse Power.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches.	Diameter of Main Shaft, Inches.	Length of Shaft from Center of Engine, Feet and Inches.	Diameter and Face of Band Wheel, Inches.	Revolutions per Minute.	Length of Engine Including Band Wheel, Feet and Inches.	Weight, Pounds.
18	8x13	2	2½	3 15/16	5 0	54x10	175	8–10	2900
25	9x13	2	3	3 15/16	5-0	54x12	175	8-10	3250
30	10x13	2	3	3 15/16	5-0	54x12	175	8-10	3500
35	10x16	2½	3½	4 7/16	6-0	60x12	165	10 6	4300
45	11x16	2½	3½	4 7/16	6 0	60x14	165	10– 6	5000
50	12x16	3	4	4 7/16	6-0	60x14	165	10 6	5300
55	12x18	3	4	5 3/16	7 0	72x16	160	11- 9	7500
65	13x18	3½	4½	5 3/16	7-0	72x18	160	11- 9	8000
80	14x18	4	4½	5 3/16	7–0	84x18	160	12- 3	8500
110	16x20	4	4½	7 1/16	8–2½	96x22	150	14– 6	14000
150	18x20	4½	5	7 1/16	8 2½	96x24	150	14– 6	15600

We furnish with each Engine the following: Out Board Pillow Block and Adjustable Sole Plate, Band Wheel, Automatic Stop Motion Governor, Governor Belt, Throttle Valve, Oil Can, Oil Cups, Centrifugal Ball Oiler for Crank Pin, Sight-Feed Cylinder Lubricator, Wrench and Foundation Plans.

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410
Louisville Ky

STEAM ENGINES.

Automatic Center Crank Engine.

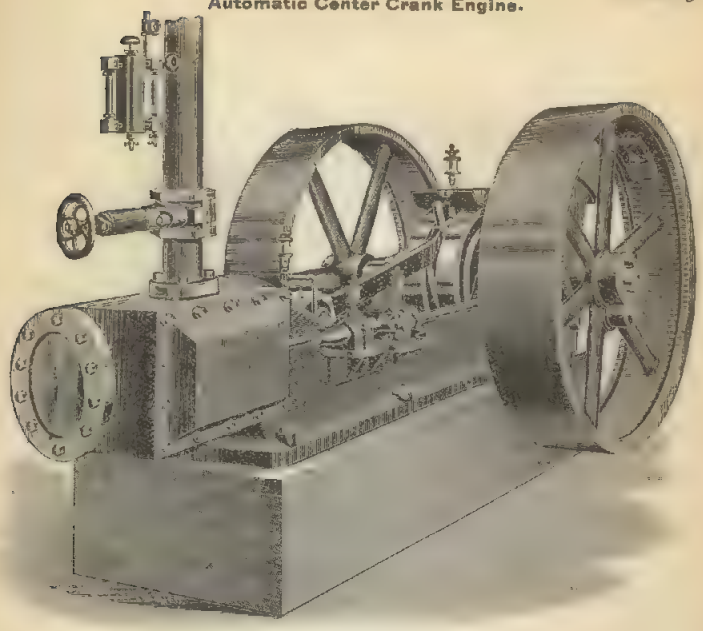

FIG. 1062

Horse Power at 40 Pounds M. E. P. and ½ cut off.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches.	Diameter of Crank Shaft, Inches.	Diameter and Face of Hand Wheels, Inches.	Revolutions per Minute.	Floor Space Required, Inches.	Weight, Pounds.
35	8x13	2½	3	3 15/16	54x10	275	106x55	3450
45	9x13	3	3½	3 15/16	54x10	275	106x55	3900
50	10x13	3	3½	3 15/16	54x10	250	106x55	4200
65	11x14	3½	4	4 7/16	54x12	250	115x74	6100
80	12x14	4	4½	4 7/16	54x12	250	115x74	6600

The above table gives a range of Horse Power and Revolutions covering the usual requirements.

We furnish with each engine the following: Two Band Wheels, Shaft Governor, Special Throttle Valve, Oil Can, Wipe Oilers for Crosshead Pin, Drip Oiler for Eccentric and Crank Pin, Sight Feed Cylinder Lubricator with connections, Special Oilers for Valve Crosshead and Main Bearings.

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411
Louisville Ky.

STEAM ENGINES.

Automatic Side Crank Engine.

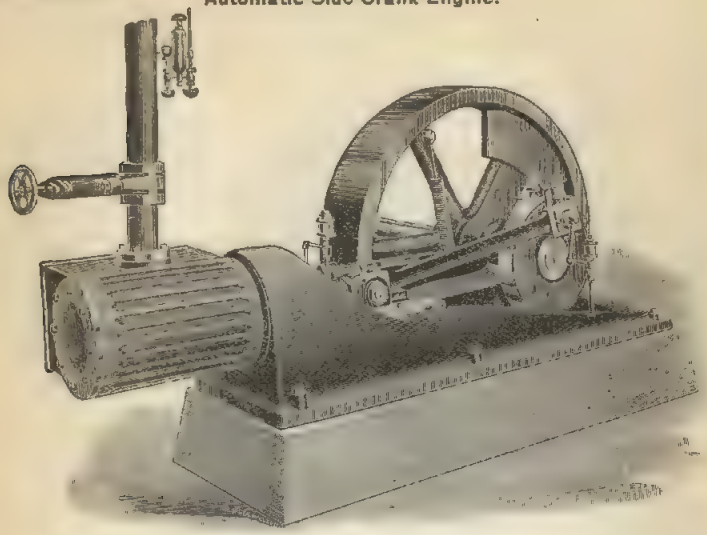


FIG. 1063.

Horse Power at 40 Pounds M. E. P. and ¼ cut off.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust Pipe, Inches.	Diameter of Main Shaft, Inches.	Length of Main Shaft from Center of Engine, Feet.	Diameter and Face of Band Wheel, Inches.	Revolutions Per Minute.	Length Over all Including Band Wheel, Feet and Inches.	Weight, Pounds.
30	8x13	2½	3	3 15/16	5	54x10	225	8 10	3250
40	9x13	3	3½	3 15/16	5	54x10	225	8 10	3450
50	10x16	3½	3½	4 7/16	6	60x14	200	10-6	5000
60	11x16	3½	4	4 7/16	6	60x14	200	10 6	5500
70	12x16	3½	4	4 7/16	6	60x14	200	10-6	5800
75	12x18	4	4½	5 7/16	7	60x16	185	11-3	8400
90	13x18	4	4½	5 7/16	7	60x16	185	11-3	8800
105	14x18	4½	5	5 7/16	7	72x18	185	11 9	9000
145	16x20	4½	5	7 7/16	8½	84x22	180	14 0	15100
185	18x20	5	6	7½	8½	84x24	180	14-0	17000

We furnish with each engine the following: Pillow Block with Adjustable Sole Plate, Band Wheel with Shaft Governor, Special Throttle Valve, Oil Can, Wipe Oiler for Crosshead Pin, Drip Oiler for Eccentric, Centrifugal Ball Oiler for Crank Pin, Sight Feed Cylinder Lubricator with connections, Special Oilers for Valve Crosshead and Main Bearing, and Foundation Plans.

EYE PROTECTORS, EYE SHIELDS AND GOGGLES.

NICKEL PLATED FRAME, SMOKE AND BLUE LENSES.

Steel Nickel Plated Frame, Large Smoke or Blue Lenses, Riding Bows, Patent Joints.

No. 1506 ..... Per Dozen $2.20

NICKEL FRAME, SMOKE LENSES.

Fine Steel Frames, Close Joints, Four Smoke Lenses, Riding Bow Temple, Excellent to Protect Eyes

No. 1513 ..... Per Dozen, $18 00

SMOKE LENS SPECTACLES.

Good Nickel Plated Frame, Riding Bow, 00 Eye, Smoke or Blue Lenses, Assorted Sizes

No. 1507 ..Per Dozen, $2.40

Steel Nickel Plated Riding Bow, 00 Eye Smoke Lenses Assorted Shades Fine Goods

No. 1508 ..... Per Dozen $3 30

No. 1509 Nickel Eye, Children's Size Smoke Lenses ..... Per Dozen, $2 40

Steel Riding Bow Frame, Smoke Lenses with Side Wire Gauze Screen Attached to Temples. In case. An excellent Eye Protector

No. 1514 ..... Per Dozen $8 00

No. 1510 Steel Frame, Large Smoke Lenses Assorted Per Dozen, $2 00

No. 1511 Nickel Plated Frame Large Smoke Lenses . Per Dozen 2 50

No. 1512 Solid Nickel Frame Large Smoke Lenses .Per Dozen, 3 00

Nickel Plated Eye Protectors Large Clear Lenses Riding Bow Frame, Excellent to Protect Eyes from Dust

No. 1515 ..... Per Dozen $2 50

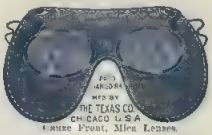
Per Dozen

No. 1516 Wire Gauze Goggles, Assorted Color Lenses $1 50

No. 1517 Wire Gauze Goggles, Clear Lenses 1 50

These are put up in Tin Boxes.

TEXAS AUTOMOBILE GOGGLES.



Gauze Front, Mica Lenses.

No. 1521 ..... Each, $1 00

Leather Front, Mica Lenses.

No. 1522 ..... Each, $1.50

BELT'S EYE SHIELDS.

Belts Eye Shields. Clear Celluloid Like Cut

No. 1523 ..... Per Dozen $2 40

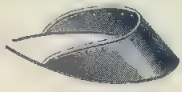
LAMP'S MICA EYE SHIELDS.

Folding in Center. Clear or Smoke.

No. 1518 .Per Dozen $4 00

Celluloid Eye Shade with Strap, Like cut

No. 1519..... Each $0.30



Paper Eye Shade, with Wire Band.

No. 1520 ..... Each $0 30

TEXAS EYE SHIELDS.

No. 1524 All Mica Shields Like cut Per Dozen, $3 00

No. 1525 Gauze Frame Mica Lenses . Per Dozen, 4.00

Smoke or Clear Lenses,

Medium Weight, Oval Eye Wire, Regular Riding Bow Temples, Bevel End Piece. This is the Regular Prescription Frame. Made in all sizes of eye, 1, 0 and 00 eye.

No. 1403	8k Frame, like cut	each,	$4 00
No. 1404	10k Frame, like cut	each,	4 80
No. 1405	14k Frame, like cut	each,	6 50

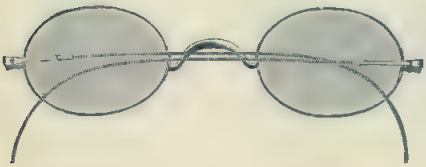
For Convex Lenses in Frame add 15c NET.

SOLID GOLD FRAMES.

Heavy Weight Frame, Oval Eye Wire, Regular Riding Bow Temples, Bevel End Piece. Very Durable. Made in all sizes, 1, 0, and 00 eye.

No. 1406	8k Frame, like cut	each	$4 50
No. 1407	10k Frame, like cut	each,	5 20
No. 1408	14k Frame, like cut	each,	7 20

For Convex Lenses in Frame add 15c NET.



SOLID GOLD FRAMES WITH CABLE BOWS.

Medium Weight Frame, Cable Temples, Oval Eye Wire, Bevel End Piece. Made in all sizes, 1, 0 and 00 Eye.

No. 1409	8k Frame like cut	each	$5 00
No. 1410	10k Frame, like cut	each	6 00
No. 1411	14k Frame like cut	each	8 00

For Convex Lenses add 15c NET.

SOLID GOLD RIMLESS SPECTACLES

Bevel End Pieces, Regular Riding Bows.

		Per Pair
No. 1412	10k Mountings only	$3 40
No. 1413	10k Mountings, with Convex Lenses, 0 to 00 Eye	5 00
No. 1414	14k Mountings only	6 00
No. 1415	14k Mtgs. with Convex Lenses, either 0 or 00 Eye	8 00

SOLID GOLD MOUNTINGS, WITH CABLE TEMPLES

		Per Pair
No. 1416	10k Mountings only	$4 00
No. 1417	10k Mtgs. with Convex Lenses, either 0 or 00 Eye	6 00
No. 1418	14k Mountings only	7 80
No. 1419	14k Mtgs. with Convex Lenses, either 0 or 00 Eye	9 40

SOLID GOLD FRAMES. STRAIGHT TEMPLES

Oval Eye Wire, Straight Temple, Medium Weight, 1, 0 or 00 Eye.

No. 1420	8k Frame, like cut	each,	$4 50
No. 1421	10k Frame, like cut	each,	5 40
No. 1422	14k Frame, like cut	each,	7 50

For Convex Lenses add 15c Net.

SOLID GOLD FRAMES, STRAIGHT TEMPLES.

Flat Eye Wire, in either 1, 0 or 00 Eye, Medium Weight.

No. 1423.	8k Frame, like cut	each	$5 00
No. 1424.	10k Frame like cut	each,	5 50
No. 1425.	14k Frame, like cut	each,	7.50

For Convex Lenses add 15c Net.

FINE GOLD FILLED SPECTACLE FRAMES.

GOODYEAR

Goodyear Gold Filled Frames are made of 10k Gold Filled Seamless Wire. Fine Quality and Excellent Finish. Guaranteed for 10 Years, and gladly replaced if found defective during this time. Each one tagged Goodyear Norris Allister & Co.

Fine Goodyear Gold Filled Frames.

No. 1426. Per Dozen, $12.00

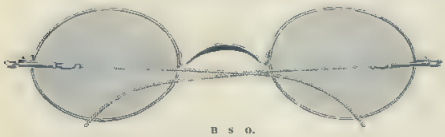
10k Gold Filled Frames, Bevel End Piece, Riding Bow Temples. Guaranteed 10 Years.

No. 1427. Per Dozen, $15.00

10k Gold Filled Frames, Bevel End Piece, Cable Riding Bows. 10 Year Guarantee.

Convex Lenses Fitted to Frames $2.00 Dozen List Extra.

This is our Special Quality Gold Filled Frame, and will be replaced by us, Norris Allister & Co., Should it Fail to Wear 10 Years.



B. S. O.

B. S. O. Gold Filled Frames are made in 10 Year and 20 Year Quality. These Frames are made of Extra Quality Stock. Fine Finish, and gladly replaced if found defective in wear.

Fine B. S. O. Gold Filled Frames.

Made in the 10 Year and 20 Year Quality.

No. 1428. B. S. O. 10 Year . . . . . Per Dozen $16.00
10 Year Gold Filled Frames, R Bow Bevel End Piece. Fine Finish.

No. 1429. B. S. O. 10 year . . . . . Per Dozen $20.00
10 Year Gold Filled Frames, Cable Temple, Bevel End Piece. Fine Finish.

No. 1430. B. S. O. 20 year . . . . . Per Dozen $20.00
20 Year Gold Filled Frames, Riding Bow, Bevel End Piece. Fine Finish.

No. 1431. B. S. O., 20 year . . . . . Per Dozen $25.00
20 Year Gold Filled Frames, Cable Temples.
Convex Lenses Fitted in Above $2.00 Dozen List Extra.

STEVENS QUALITY GOLD FILLED FRAMES.

Stevens Quality 12k Gold Filled Frames are far Superior to the Usual Kind. Have Seamless Eye Wire. Are very Stiff and extra Fine Finish. Use them.

Steven's Quality Gold Filled Frames.

Guaranteed for 12 Years. 12k Gold Filled Stock.

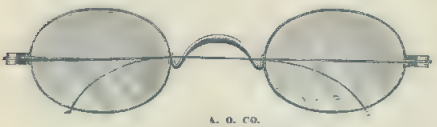
No. 1432. Per Dozen, $15.00

Fine Quality Gold Filled Frames, R Bow, Bevel End Piece, Fine Finish.

No. 1433. Per Dozen, $18.00

Fine Quality Gold Filled Frames, Cable Bow Temples, Bevel End Piece, Fine Finish.

Convex Lenses Fitted in Frames Assorted as Desired at $2.00 Per Dozen List Extra.



A. O. CO.
GOLD FILLED FRAMES.

A. O. Co. Gold Filled Frames are standard—made of 10k Gold Filled Stock. Excellent Quality, Seamless Wire. Extra Fine Finish.

Fine A. O. Co. Gold Filled Frames.

Guaranteed 10 Years. 10k Gold Filled Stock.

No. 1434. Per Dozen, $14.00

A. O. Co. Fine Gold Filled, 10 Year Frames, Riding Bow, Bevel End Piece.

No. 1435. Per Dozen, $16.00

A. O. Co. Fine Gold Plated, 10 Year Frame, Cable Riding Bow Temples, Bevel End Piece.

Convex Lenses Fitted $2.00 Per Doz. List Extra.

GOLD FILLED FRAME.
SOLID GOLD BRIDGE AND ENDS

A Special Quality Frame, Gold Filled with 10k Solid Gold Nose Piece and Bridge, Bevel End Style. Excellent Quality. 10 Year Guarantee.

Fine Gold Filled Frames with Solid Gold Bridge and End Pieces.

Guaranteed 15 Years.

No. 1436. Per Dozen, $20.00

Fine Gold Filled Frames, Riding Bow, 10k Solid Gold Bridge and End Piece, Bevel Ends.

No. 1437. Per Dozen, $24.00

Fine Gold Filled Frames, Cable Riding Bow, 14k Solid Gold Bridge and End Piece, Bevel Ends.

Convex Lenses Fitted to Frames Assorted as Desired $2.00 Per Dozen List Extra.

GOLD FILLED
RIMLESS SPECKS.

Our Rimless Mountings are 10k Filled, Guaranteed 10 Years. Bevel End Piece. Extra Quality and Finish.

Fine 10-Year Gold Filled Rimless Spectacle

No. 1438. Per Pair, $1.40

10 Year Gold Filled Mounting, R Bow Ons.

No. 1439. Per Pair, $2.00

10 Year Gold Filled Mountings, R Bow, with Convex Lenses, 0 or 00 Eye.

No. 1440. Per Pair, $2.00

10 Year Gold Filled Cable Temple Mountings, Riding Bow.

No. 1441. Per Pair, $2.70

10 Year Gold Filled Cable Temple Mountings, with Convex Lenses, 0 or 00 Eye.

For Straight Temple Gold Filled Frames, see Page 551.

FINE RIDING BOW FRAME SPIRAL TIP TEMPLES.

No. 1442	10k Solid Gold, Medium Weight, Spiral Temples, Each	$5 00
No. 1443	Extra Fine Gold Filled, 10 Years, Spiral Temples, Each	2 00
No. 1444	Fine Silveroid, Extra Finish, Spiral Temples, Each	100

Lenses Extra.

FLAT TOP SPECTACLE RIDING BOWS.

Very convenient, as it allows the wearer to look over the reading glass without removing same.

No. 1451	10k Solid Gold, Medium Weight, Riding Bow Temples, Each	$5 00
No. 1452	Gold Filled Frame (10 Years), Riding Bow Temples, Each	2 00
No. 1453	Silveroid Frame, with Riding Bow Temples, Each	100

Lenses Extra.

COMBINATION SPECK FRAME

Very Practical. Fit Well on the Nose.

No. 1445	10k Solid Gold Frame, Complete	Each,	$7 00
No. 1446	Gold Filled Frame, Complete	Each,	2 50
No. 1447	Nickel Plated Frame, Complete	Each	1 50

Lenses are Extra. Also made in Rimless Style

GRAB FRONTS.

Used to hook on front part of distance glasses when wishing to use reading glasses.

No. 1454	10k Solid Gold Grab Front	Each	$4 00
No. 1455	Gold Filled (10 Year) Grab Front	Each	1 50
No. 1456	Nickel Plated, Grab Front	Each	1 00

FINE GOLD FILLED SPECK FRAMES.

Guaranteed 10 Years. Straight Temples.

No. 1448	Goodyear Gold Filled Frames (10 Years)	Per Dozen	$11 00
No. 1449	B. S. O. Gold Filled Frame, (20 Years)	Per Dozen	23 00
No. 1450	B. S. O. Gold Filled Frame (10 Years)	Per Dozen	20 00

Convex Lenses fitted $2 00 Per Dozen Extra.

FLAT TOP SPECTACLES.

Straight Temples. Very Convenient, as they allow wearer to look over top of lense, which contains reading glass.

No. 1457	10k Solid Gold, Medium Weight, Straight Temples, Each		$6 00
No. 1458	10k Gold Filled, Medium Weight (10 Years),	Each.	2 50
No. 1459.	Steel Nickel Plated Frames,	Each.	70

Lenses Extra

AJAX RIMLESS SPECTACLES NICKEL MOUNTINGS.

RIMLESS CEMENT BIFOCAL SPECTACLES.

No. 1460. Per Dozen, $10.00

Medium Quality Nickel Plated Mounting. Good Quality Convex Lenses. Cement bifocal 0 Eye. Lenses assorted 5 to 20. Uppers to match.

AJAX EYE PROTECTOR.

No. 1462. Per Dozen, $4.40

Medium Quality Rimless Eye Protectors, Fine Clear White Lenses. Nickel Plated Mounting. Large Eye Size. Very Practical and a Splendid Seller.

No. 1461. Per Dozen, $6.00

Medium Quality Nickel Plated Mounting, Good Quality Convex Lenses, Riding Bow Temples, 0 Eye Size Lenses. A Very Practical Rimless Spectacle.

Lenses Assorted 8 to 24 and 10 to 36.

SMOKE RIMLESS SPECTACLE

No. 1463. Per Dozen, $4.00

Medium Quality Rimless Smoke Speck Lenses, Nickel Mounting Riding Bow Temple, 0 Eye Lenses.

Lenses are Assorted Shades, Ajax Mountings.

FINE STEEL FRAMES, NICKEL PLATED.

Furnished in any Eye Size

No. 1464. Medium Quality Frame, Nickel Plate Finish...Per Dozen, $2 40
No. 1465. Medium Quality Frame, Extra Finish, ...Per Dozen 2 80
No. 1466. Fine Quality Frame, Extra Finish ... ... Per Dozen, 1 60

Can furnish these Frames fitted with Convex Lenses Assorted for $2 00 Per Dozen Extra

FINE ALUMNICO FRAMES, EXTRA FINISH

Alumnico and Alumnico Frames are made of a Special Fine Partly White Metal. Is light and durable. Will not Rust or Tarnish. Very Fine Finish.

No. 1469 Fine Alumnico Frames, Extra Finish ..... Per Dozen, $3.50
No. 1470 Fine Alumnico Frames, Extra Finish..... .. Per Dozen, 4 00

Can furnish these Frames fitted with Convex Lenses Assorted for $2 00 Per Dozen Extra

FINE GERMAN SILVER OR SOLID NICKEL FRAMES.

Made of a Special Quality of White Metal Will not Tarnish or Rust Have an Extra Fine Finish. Medium Weight

Per Dozen

No. 1467 Fine Solid Nickel Frame, Oval Eye Wire, Straight. ... $2 80
No. 1468. Fine Solid Nickel Frame, Flat Eye Wire, Straight..... 2.80

These Frames Fitted with Convex Lenses, Assorted as Desired $2 00 Per Dozen Extra

EXTRA QUALITY ROMAN ALLOY FRAMES.

Straight Temple.

These are Heavily Gold Plated Fine Finish, and much more Satisfactory than the Cheaper Quality—Furnished in 1 and 0 Eye.

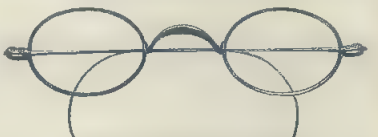
Per Dozen

No. 1471 Roman Alloy Frame, Flat Eye Wire Straight Temple..... $3 00
No. 1472 Roman Alloy Frame, Oval Eye Wire Straight Temple.. .... 3.00
No. 1473. Regaloid Gold Alloy Frame, Oval Eye Wire Straight Temple 3.50
No. 1474. Regaloid Gold Alloy Frame, Flat Eye Wire Straight Temple 3 50

Convex Lenses Fitted $2 00 Per Dozen Extra

STEEL FRAMES, NICKEL PLATED FINISH.

No. 1475. Good Steel Frame, Nickel Plated Riding Bow Per Dozen $3 00
No. 1476. Fine Steel Frame, Nickel Plated Riding Bow Per Dozen 3 50



FINE GERMAN SILVER SPECK FRAMES.

These Frames are made of Special Quality of White Metal. Will not Tarnish or Rust Extra Finish. Made in all Eye Sizes One 0 and 00 Eyes.

Per Dozen

No 1479. Fine German Silver Frame, R Bow Extra Finish $2 00
No. 1480. Fine German Silver Frame, Cable Ridling Bow 4 50

Can Furnish Convex Assorted Lenses in these Frames for $2 00 Per Dozen List Extra

FINE STEEL FRAMES, EXTRA NICKEL PLATE.

This Frame is Furnished in any Eye Size One 0 or 00 Eye

Per Dozen.

No. 1477 Fine Steel Frames, Nickel Plated Riding Bows..... ..$4 00
No. 1478. Fine Steel Frames, Extra Nickel Plated Riding Bows .. 5 00
These Frames with Convex Assorted Lenses $2 00 Per Dozen List Extra

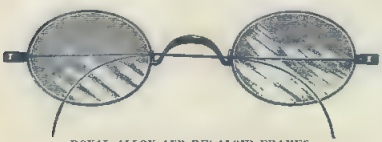
FINE ALUMNICO SPECK FRAMES, FINE FINISH

This Frame is made of Special Quality Alumnico, Medium Weight, Fine Finish Bevel End Piece. Durable

Per Dozen

No. 1481 Fine Alumnico Frame, R Bow, Extra Finish, like cut . $3 50
No. 1482 Fine Alumnico Frame, Cable Bow Extra Finish, like cut 3.50
No. 1483. Fine Alumnico Frame, R Bow, Gold Filled Nose Piece. .. 5.00
No. 1484 Fine Alumnico Frame, Cable Bow Gold Filled Nose Piece 7 00

Convex Lenses in Frames $2 00 Per Dozen List Extra



ROYAL ALLOY AND REGALOID FRAMES.

Made of Gold Alloy Metal Gold Plated.

No. 1485. Royal Alloy Frame Riding Bow . . Per Dozen, $3 00
No 1486. Regaloid Alloy Frame, Riding Bow.... Per Dozen, 3.50

Convex Lenses Fitted $2 00 Per Dozen List Extra.
Regaloid Frames are Special Alloy and give Good Results.

FINE RIMLESS SPECTACLES, RIDING BOWS

Per Dozen.

No 1487 Fine Nickel Plated Rimless Specks, with Lenses... $12 00
No 1488. Fine Alumnico Rimless Specks, with Lenses 14 00
Furnished with Convex Lenses as Desired.

STEEL, NICKEL AND ALUMINUM SPECTACLES.

Frames With Lenses Fitted Complete.

STEEL NICKEL PLATED SPECTACLES

No. 1489 ..... Per Dozen, $1 50
Medium Quality Nickel Plated Frame, Patent Joint Piece (No Screws), Long Straight Temples, Medium Sized Convex Lenses, Assorted as Below
Lenses Assorted 5 to 16, 8 to 24 and 10 to 36.

STEEL NICKEL PLATED SPECTACLES.

No. 1490 ..... Per Dozen, $3 00
Good Quality Nickel Plated Frame, Screw End Piece, Long Straight Temple, 1 Eye Lenses.
Assorted 5 to 16, 8 to 24 and 10 to 36.

FINE QUALITY STEEL NICKEL PLATED SPECTACLES.

Fine Steel Frame, Nickel Plated Screw Joint

No. 1491 ..... Per Dozen, $4 00
Long Straight Temples, Large Size, Fine Quality Convex Lenses, Assorted as Desired

NICKEL PLATED RIDING BOW SPECTACLES

No. 1493..... Per Dozen, $2 80
Medium Quality Steel, Nickel Plated Frames, Riding Bow, Patent End Piece (No Screws) Convex Assorted Lenses 8 to 24 and 10 to 36.

FINE QUALITY ALUMINO AND GERMAN SILVER SPECTACLES.

Per Doz.
No. 1492 Fine Aluminico Frames, Convex Lenses Assorted $5 00
No. 1492½ Fine German Silver Frames, Convex Lenses Assorted 4 00
Frames are Standard Size. Long Temple Screw Ends.

NICKEL PLATED RIDING BOW SPECTACLES

No. 1494 ..... Per Dozen, $3 20
Good Quality Steel, Nickel Plated Frame, Riding Bow Temples, Screw End Piece, Convex One Eye Lenses. Assorted 8 to 24 and 10 to 36.

SPLIT BIFOCAL SPECTACLES.

No. 1497 Wrought Nickel Plated Split Bifocal Specks Per Dozen $3 00
No. 1498 German Silver Frame, Split Bifocal Specks Per Dozen 5 00
No. 1497 Aluminico Frame, Split Bifocal Specks... Per Dozen 7 00
Reading Lenses 5 to 20, Upper to Match

CEMENT AND PERFECTION BIFOCAL SPECTACLES.

No. 1502 ..... Per Dozen, $8 00
Nickel Plated Riding Bow Frame, Cement Bifocal Lenses, Reading Lenses Assorted 5 to 20, Upper to Match

No. 1503 ..... Per Dozen, $10 00
Nickel Plated Riding Bow Frame, Perfection Bifocal Lenses, Assorted 5 to 20, Upper to Match

CEMENT AND PERFECTION BIFOCAL SPECTACLES

Per Dozen
No. 1498 Steel Frame, Nickel Plated, Cement Bifocal Lenses ..... $ 7 00
No. 1499 Solid Nickel Frame, Cement Bifocal Lenses 8 00
No. 1500 Steel Frame, Nickel Plated, Perfection Bifocal Lenses 12 00
No. 1501 Solid Nickel Frame, Perfection Bifocal Lenses 13 00
Prices are for Reading Lenses Reading 5 to 20, Upper to Match.

GERMAN SILVER AND ALUMINICO SPECTACLES

No. 1504 German Silver Frame, Convex Lenses Assorted. Per Dozen, $4 50
No. 1505. Aluminico Frame, Convex Lenses ..... Per Dozen, 6 00
Lenses Assorted as Desired.

ROYAL ALLOY AND GERMAN SILVER SPECTACLES

Per Dozen
No. 1506. Royal Alloy Frame, Flat Eye Wire, Convex Lenses $4 50
No. 1507 German Silver Frame, Flat Eye Wire, Convex Lenses 4 50

road or standing still while running in the shop. The velocity of the current of cooling air when the motor is not traveling being only that due to the thermal circulation, where, as in the present instance, no fan or mechanical air-current producing agent is employed. The hood is regarded by the "Premier" experts as a needless addition, they holding it as fully proved by experiment that an air cooled motor runs better on the road without a hood than with one.

Fig. 5. Premier Racer clutch, steering post bracket, lubricator and lubricator driving pulley. Clutch is 2 saw-steel plates, alternating soft and hardened. The hardened plates are not straight on, after hardening but are all warped and wavy. They are never nearly flat. The slight unevenness of the hard plates holds lubrication, and assists clutch release. Hammering for clutch plates. See clutch description in text.

STEERING

This is by a double square-threaded screw, ¼ in. width of threads and grooves 1 in. Pitch, 1½ ins. out-diameter, pinned and brazed to the steering shaft. This screw takes an integral nut on the back of a rack 4 D. P., which engages a 4 D. P. spur-pinion, 3 ins. radius, 6 ins. full diameter, fixed to the steering arm, globe ended, 11 ins. c. to c. The pinion is applied to the taper-squared steering arm rock-shaft, and held up with a nut. The screw is hard, the nut and rack are hard bronze, and the rack, 4 D. P., is 2⅛ ins. face. The pinion is held up to the rack by a flat on top of the nut, which bears against the finished housing, making the whole construction very secure, and of abundant strength. The steering rod has globe bearings at both ends, notwithstanding its great length, which would easily permit the use of a flat forked joint at the knuckle-arm end.

THE SPARK AND THROTTLE CONTROL

These adjustments are had by separate rockers, laid along the front of the very much inclined steering post, and the movements are taken by universal joints to the primary current distributor and the rack-and-pinion operated carburetor-adjustment, which are separately illustrated

BRAKES.

The internal brake drums, 12 ins. diameter by 1¾ in. face, are steel castings integral with the rear wheel hubs. The shoes are bronze, hinged, fitted metal to metal to the drum surface, and are cam-rock-shaft applied in operation, and the brake system is enclosed against dust.

VALVES AND VALVE ACTION

The valves are very large, 2½ port diameter for the intake, and 3½ ins. for the exhaust. The intake valve drop is 7-16, and the exhaust drop is 9-16 in. The cam rollers are tool steel, 1¼ diameter, pins 7 16 diameter, all hardened and ground. The long valve actuating bell-crank arms are 6 7-32 ins. and the short arms are 4 5-32 ins. center to center, ratio 133 to 193, which gives a cam toe lift on the roller of about 23-64 for the exhaust cams, and about 9-32 for the intake cams. Thus small cam-toe lift working on a 1¼ roller, cams and rollers hardened, permits an extremely rapid valve action, and gives a full admission and full exhaust in the least possible time, as the cam-action is the quickest that can be devised, so far as now proven by actual practice, and this rapid valve opening of course greatly favors the disposition of the heat by exhausting direct, rather than by transmitting the heat to the cooling air through the cylinder walls and the cooling ribs.

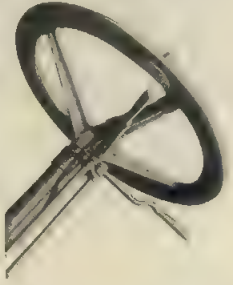


Fig. 6. Premier Racer, steering wheel and spark and throttle control. The long hand levers are worked by the fingers without removing hands from wheel. The spark regulation has little attention. The throttle is in constant use to govern pace. The richness of mixture increases as the throttle is opened, if throttling increases, and lean mixtures as the throttle is opened. The spark regulating lever stands upright, indicated by the hand. The carburetor throttle lever is let between the driver's first and second right hand fingers, without releasing grasp of wheel. The control connections are by small shafts and universal joints, shown in Fig. 1.

In this same line of direct discharge of heat through the valve parts into the open air, is the placing of the valves at an inclination of 22½ degrees to the vertical, which makes the exhaust in an easy curve of exit, instead of forcing it to turn a right angle as it goes out, and so strongly impinge the exit passage walls.

The inclined valves and multiplying valve actuating bell-cranks undoubtedly form a

better valve motion than it is possible to obtain with valve-stems vertical and parallel, for either an air-cooled or water-cooled motor, because, in the nature of things, the wider and more direct the exit is, the more certain and rapid the exodus is likely to be. But in air-cooling it is highly important that the exhaust should have a clear way out, unimpeded by turns and bends which force the products of combustion against the exhaust passage

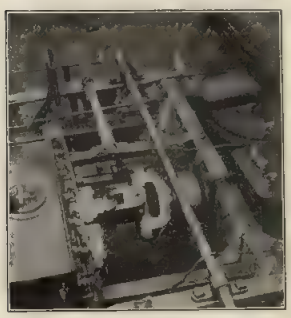


Fig. 7. Premier Racer, universal joint. The cross pins are 1 in. dia., and pass each other in the bronze casing cross. The pins, hardened and ground, are hollow and self-lubricating. The pump, shedding boss is at the left and the brass charge battery at the right, under La [illegible] cover. E, in the speed change lever, fixes to a flange rocker having a sidewise sliding movement to permit the speed changing rocker-arm cylindrical end to enter the upwardly opening gab-hook end of either one of two shift rods, horizontal, set close side by side, by which the "selective" gear changes are made. R is the carburetor needle valve hand wheel, fixed to the rear end of a long horizontal shaft running forward to the carburetor float chamber. (See Fig. 1.

walls, and so make the exhaust impart a needlessly large proportion of its heat to the metal of the motor, instead of passing the exhaust to the open air as directly as possible, thus permitting the exhaust to retain as much of its heat as may be up to the instant of leaving the motor.

The long arms of the bronze bell-cranks terminate in threaded temper-screw seats, adjustment pinching-screw retained by which all lost motion may be taken out of the valve action.

Two sets of cams are used, exhaust and admission, fixed to the cam-shaft with rivetted taper pins and Woodruff keys. The cam shaft bevel gear is also fastened with taper pin and Woodruff key, cylindrical seat. The cam-shaft boxes are hand-gun lubricated.

TRANSMISSION.

The clutch is 21 plates of saw steel, 11 hardened and not hammered straight, but left wavy as they come from the hardening bath. The 10 soft plates are held to the fly-wheel by 6 studs, steel, ⅝ dia., and the 11 hard plates are held by tongues fitting ¼ deep key-ways in the clutch shaft body. The friction plates are about 9 ins. out diam. over the pin lugs, and perhaps 7⅝ effective dia. Engagement is normal, effected by a coiled spring in the clutch hub cone, 45 deg. angle, working on rollers of 4 clutch-applying bell-cranks, short arms forced against rear clutch-plate. Clutch disengaged by pedal, linked to brake and clutch-cone, both, neutral after clutch is disengaged by forward pedal motion, and clutch release continuing while brakes are applied by extreme forward pedal movement. Transmission from clutch shaft to line shaft is by a two solid jawed clutch, radial faces, not universal to the line shaft. Gear, sliding, 4 d. p., 1¼ in. face, all hard, all on Hess Bright bearings, American modification, constantly moving side-shaft, selective change by a lever fixed to a sliding rock shaft, and moved to engage either one of two gab-hooks integral with horizontally

Fig. 8. Premier Racer, commutator and valve action. The commutator is on the rear end of the cam-shaft, and has 4 wire-gauze brushes in the radial bosses shown, brushes spring-pressed to constant contact, with a practically continuous-surfaced copper cylinder, short-circuited at one point by a highly ingenious construction patent applied for, not described in detail. The bevel valve operating bell-cranks, mounted on a hollow horizontal top shaft, hand oiled, have pinch screw retained temper-screws threaded in their outer ends to take up lost motion between the hardened temper-screw ends and the hardened valve stem ends. This illustration shows the intake valve side.

sliding speed change rods, so that this one hand lever makes all changes direct, without intermediate engagements. There is one universal joint next to the speed-change, pins 1-in. diam., fitted in a bronze cross to pass each other at right angles, hollow and self-lubricating. The speed change is on a sub-frame, in an aluminum gear box, capped, with oil-pool in lower member. The only combination linkage is that of the clutch-pedal to clutch-release and brakes, intermediate neutral station.

LUBRICATION.

This is by a mechanical oiler, 8 force-pumps, individual plunger adjustment, and 8 individual copper tube oil leads. Oil pump

Smith, now president of the G. & J. Tire Company and of the Premier Automobile Company. Weidely had his first car, own design, on the road in 1900. This was a large car driven by a pair of opposed cylinders 6¼x8 ins., weight of car about 2900 lbs., 4 passengers. This car was not what was wanted of course, but all the same it made some miles in better than 1:05. This big car motor was water-cooled, and was driven by Weidely himself many thousands of miles; it was on 36 inch wheels, with 4½ inch tires. In the fall of 1902 the Premier Company was organized by Mr. Smith and Mr. Weidely, capital stock $50,000.00, increased in 1904 to $100,000.00, the old stockholders taking most of the increase at par. The first Premier cars were two and four vertical cylinder motors, cylinders 5 x 6 ins., water-cooled, modeled on French practice, of which some 18 or 20 were built and sold, and are all still in use. The 4 cylinders were powerful and heavy cars, weighing 3400 lbs. and were well built and durable constructions. All this time users were at large expense for tire repairs, and Weidely, well aware of the weakness of the pneumatic tire, saw clearly that the light car, which put the least work on its tires, was the car to best meet the wants of the average purchaser, and his search for light-weight motor-wagons first directed his attention to air-cooling, which considerably reduces motor weight. The first Weidely air-cooled, 4 cylinders, 3⅜ x 4¼, was on the road in July, 1903, and that same chassis, fitted with a small truck body, is now in constant use by the Premier Company. The very favorable showing of this little air-cooled motor caused the Premier Company to devote all its energies to improving light cars driven by 4 cylinders, air-cooled and set crosswise far in front, under a wide hood, with no fan. The fan has not been used on any Premier model up to that of 1905, and it is not now certain that the fan is needed or will be fitted to this 1905 Premier "Model L."

This story is given at length because it is vastly more convincing evidence of the superiority of air-cooling than if the Premier Company had not commenced with water-cooled motors. Water-cooled motors were thoroughly tried out, the air-cooling was a doubtful experiment, very cautiously tried, and showed such marked advantages that the Premier at once abandoned water-cooling, and has had a profitable and constantly increasing trade with air-cooled motors, and has now fully committed itself to air-cooled motors by building this big Vanderbilt cup contestant at a cost of about $15,000.00.

Every detail of this air-cooled racer has been designed and built in the Premier shops under instructions by Weidely, and all these details are worthy of extended description and the closest study of all who are interested in car design advance.

THE CYLINDER RADIATION.

The cooling ribs are 1¾ ins. deep, ½ in. center to center, ⅛ thick at point and 7-32 thick at the root, round corners all through, same spacing and thickness but less depth on the valve parts. The hood, not shown in these illustrations, has a "wind-sail" or enlarged mouth in front, sides of the hood placed as closely to the cylinders as the carburetor will permit and hood sides symmetrically disposed. The racing regulations demand a hood, otherwise no hood would be applied to this motor, which has so far shown no sign of overheating either on the

chassis frame, rear springs outside, front springs under frame-sides.

Spring-checks, or "Shock absorbers," are applied to this racer in front, in the form of friction drums about 5 ins. diam. x 2½ ins. face fixed to the side frames, and having split, pinch screw adjusted, pressed steel friction-arms applied to them, these arms reaching forward to stand over the front axles to which the check arms are linked, in front. By adjusting the bands on the drums the load placed on the front springs can be wholly removed, or wholly carried by the springs. On the road these spring checks are adjusted to make the spring action sluggish and prevent bouncing.

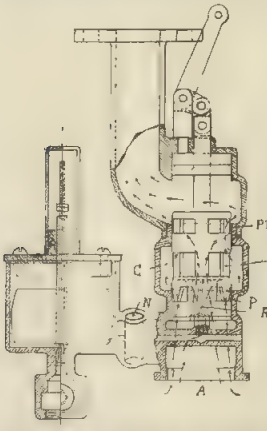


Fig 9 Premier carburetor. N needle valve seat, hand adjusted valve, moving from float chamber, which has a flat taper below. Rises as rises nearly to the top of the mixing nozzle centrally placed in 3 cylinder drum, vertically sliding mixing sleeve, which has ports at P, and P1 and 2 motor passages at T, which permit the mixture to pass to the necessary sliding sleeve. Air enters at A is mixed somewhat less the nozzle, and when the sleeve valve is adjusted to extreme low port P is closed and ports P, are open only enough to give the smallest fuel supply. With P closed the mixture is richest. As the valve is raised, by hand adjustment, air passes through ports P into the chamber Q, and then through T goes into the body of the cylindrical valve and decreases the richness of the mixture, while increasing the volume of the mixture going into the cylinders.

CHASSIS FRAME.

The sides and three cross girts are U section, greatest side frame depth 5 ins., chassis frame 142 ins. over all x 32 ins. wide. The front cross-member carries the starting crank. Then comes 5 cross girts formed by the engine base, and the transmission subframe ends are fixed to the rear of the motor frame and the front of the rear chassis frame cross girt

The fuel tank is a "rolled steel" shell, "milk-can" top, 20 gallons capacity, 240 miles range, carried on wooden chocks at rear of driver's seat.

The carburetor is an enlargement of the 1906 Premier carburetor, patent applied for. This is an all solid-part carburetor, no springs, only one moving part, which a plain balanced cylinder in a plain cylindrical vertical seat, which does many things, and is hand adjusted, both in the racer and in the 1906 Premier, and is wholly independent of piston suction for charge-constitution variation. This carburetor wholly eliminates the vexatious variables which have hitherto been so conspicuous in carburetor designs, and makes starting prompt and thoroughly satisfactory, engine power governing certain.

ON THE ROAD

A twelve-mile round trip on East Washington street with trolleys in the middle and horse-drawn vehicles on the side, was not a tranquil joy to the writer. Mr. Weidely says that the seats on this racer are remarkably easy riding. This may be true in a comparative sense, or on a smooth track; to make it unreservedly true the car must be placed on a far better surface than the East Washington street asphalt, which is not so bad, but is not good enough to drive a mile a minute on with comfort. This car can run fast, perhaps a mile in 40 seconds. It ran at about a mile a minute clip for a short distance on East Washington street with the throttle very slightly opened, and the exhaust muffled to a mild roar, not much louder than Niagara Falls and say a thousand threshing machines in active operation combined. What this racer will do with no muffler and the throttle wide open the writer does not know, and does not want to know, and never will know, of his own knowledge.

IN THE YARD.

Sept. 17. Mr. Weidely and others present. spots were brightened on the front cylinder head top under the intake and exhaust valves, and the moter was run pretty fast for 14 minutes, the car standing still, no fan, no wind, thermal air-circulation only.

The bright spot on the intake side of the cylinder head did not change color at all. That on the exhaust side, by far the hottest place on the moter, showed dark straw color, well toward "pigeon-breast" tool-temper color. The motor seemed to increase in heat all over after it was stopped, though how or why this should occur the writer cannot guess.

As soon as the motor stopped the flat on the exhaust side was flooded with a mixed lubricating oil, called lard oil; the lighter part went away very gradually in a light smoke, leaving a considerable depth of heavier oil, probably pure lard oil, standing on the flat surface, not smoking nor boiling, hot enough to fry fish in, undoubtedly, but not too hot to be an effective lubricant. The motor ran under full flexible control throughout this 14 minutes' trial, and seemed not to increase the heat after the first two or three minutes, until after stopping, and these 7 inch bore cylinders have never at any time showed any sign of being too hot to do their very best work.

The "Premier" 100-H. P. Racer

HUGH DOLNAR

This car, although a very high power racer, having probably as much as 100 H. P. maximum to turn its drivers with, appears to be of the very greatest interest and importance to both car constructors and car purchasers, because it seems to fully and completely determine all questions as to the efficient air-cooling of even larger diameter cylinders in the Premier racer, here shown and described for the first time.

The second important, and, so far as is known to the writer, unique novelty of this than will ever be placed in either pleasure or commercial motor vehicles. This indisputable testimony in favor of air-cooling is the first and most important feature of interest racer, is of more direct interest to possible purchasers of the 1906 Premier touring cars and is found in the fact that this powerful machine is merely an enlarged duplication of the regular 1906 Premier model, and the performance of this racer is therefore a thor-

Fig. 1 Premier Vanderbilt Cup Racer. Right-hand Mr. Geo. A. Weidely designer at the wheel. Wheel base [illegible] inches. Wheels [illegible] the same, all three spokes not [illegible], all [illegible] [illegible] [illegible]

shaft driven 4 turn to 5 turns of crank-shaft by a 3-ply belt, ¾ in. wide, on flange pulleys, crowned faces, pulleys 4 ins. on crank-shaft, 5 ins. dia. on oil pump shaft.

IGNITION.

Current is supplied from a 6-volt storage battery, good for 1000 miles run on one charge, to low tension distributor to 4 coils with 4 vibrators and jump-spark plugs. The motor starts, usually, on the spark, has no

der, in which, by a highly ingenious evasion of marked simplicity, one short segment of the copper contact cylinder is short circuited to the cylinder axis, all mica insulation. The brushes thus rub against a copper cylinder having a practically continuous and uniform rubbing effect on the spring-pushed brushes, wired to individual coils. This is a most durable combination, owing to contact uniformity, and is not cheap in construction.

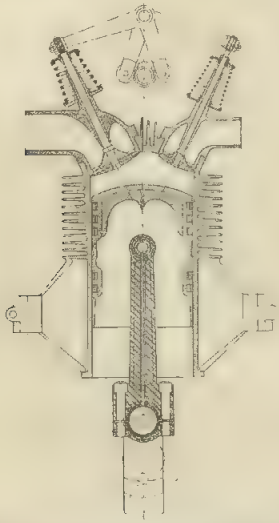


Fig. 6. Premier Racer, vertical cross section of cylinder, valves, piston rod and crank shaft. The valve-cages should show ribs 1¼ deep, spaced same as cylinder-cooling ribs. Principal dimensions. Bore 7 ins., stroke 9½ ins., intake port 2⅝ ins. dia., exhaust port 3⅝ ins. dia. Piston rods 1¾ ins. dia., steel, hardened and ground, in bronze bushing. Pins hollow, pin and crank wrist oiled by escaping cylinder sides. Cylinder thickness from both sides to jacket wall feed oil holes always covered by piston. Piston is 9¾ ins. long, 3 ins. shorter than drawing. Packing is 5 grey iron rings, 3 in. dia., flat ring with single lap. Rods 12 ins. c. to c., nickle-steel forgings, crank end is H section, I I marine type. Parsons all-bronze on crank-wrist, which is 2 ins. dia. The fixed piston displacement causes the air to rush the nozzle at the highest velocity when the ports P are closed as soon as the ports P begin to open part of the air required to fill the piston displacement passes through them, reducing the velocity of the air passing the nozzle R also, so that the mixture is made less rich. The two effects of less velocity of air passing the nozzle, and of mixing in the air passing through P, which does not pass in contact with the nozzle, but goes outside, and passes through T to mix with and dilute the mixture formed by the air which does come in contact with the nozzle. The mixing tube surrounding the nozzle is given a tapering form, smallest at the top, when this throat is passed by sufficient the diameter of the throat surrounding the nozzle is increased, which also tends to reduce the richness of the mixture as, provided a sudden increase in the supply of mixture to the cylinders from increasing in richness as it would do if the throat area of uniform diameter throughout. Proportions and shapes of the ports P, P1 and the taper and diameter of the mixing tube must be suited to work together, but valves are so much easier to open and close, allowing the valve becomes perfectly reliable, steady running at mixture richness and volume, together with the motor responds instantly to all changes of regulating valve position. Patent pending.

relief cocks, is hand turned by a 12-in. radius crank, and takes a man's strength. The distributor is of special design, patent applied for, in which four brush springs force 4-wire gauge diagonal brushes, regular dynamo type, against a practically continuous copper cylin

SPRINGS.

All half-elliptics, rear 35 ins. long x 2 ins. wide, shackled at both ends, 5 leaves, graded, ¼ in. greatest thickness. Front springs 42 ins. x 2 ins., front ends jointed to frame, rear ends sliding in loops fixed to underside of

oughly reliable indication of what the motor and driving gear of the 1906 Premier cars will do.

In most cases racing models bear no resemblance whatever to the pleasure cars offered for sale by their builders. In case of the Premier racer, its model is at all points an almost wholly exact enlargement of the Premier 1906 touring car, the only variations being in minor details where the greatly increased size of the racer calls for slight changes in mechanical treatment. So far as machine function and general machine design are concerned the Premier racer does no vary at all from the new 1906 Premier model.

diameter cylinders of this remarkable Premier racer, which are, so far as known to Mr. Weidely or to the writer, the largest air-cooled cylinders ever constructed. These 7 inch diameter cylinders which have now had some work on the road, in addition to many hours of running standing in the shop, have never yet been hot enough to burn the machine oil off the outsides of the cylinders, and this 100 H. P. motor has never shown the slightest indication of distress from heat at any time.

A moment of unprejudiced thought will show any person of average intelligence that the larger the cylinder must, in the nature of things, be more easily air-cooled

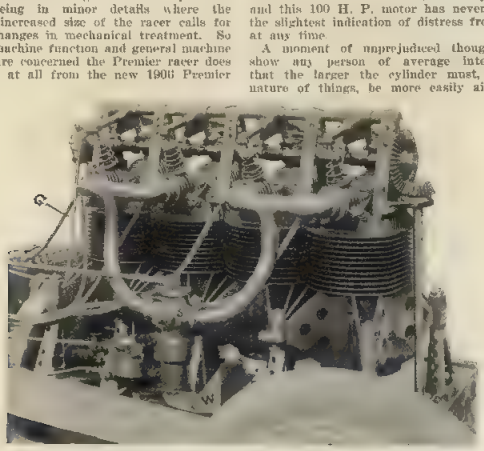


Fig 3. Premier Racer, intake side of air-cooled motor. The needle-valve regulation by miter-gears is shown on the carburetor float chamber and the rack and pinion throttle and charge-constitution regulation is seen on top of the carburetor valve column. An outwardly opening safety-valve at S protects the carburetor from damage by pressure from a premature charge firing. This illustration shows the intake piping and the cylinders construction valve action, cam shaft drive, distributor and distributor regulation by the upright globe-end connection, G, worked from the hand wheel control lever. W is the carburetor air-intake wind-sail forwardly opened and wire gauge protected. Carburetor float feed chamber is at left. Vertical valve seat in middle, cylindrical. The sliding carburetor regulating valve is hand-operated by rack and pinion to increase or diminish richness of mixture. The volume of charge to cylinder is throttled and free air passage to cylinder intake is obstructed by this throttling. A lightly spring loaded safety valve at S, opening outward, prevents pressure from the cylinder damaging the carburetor.

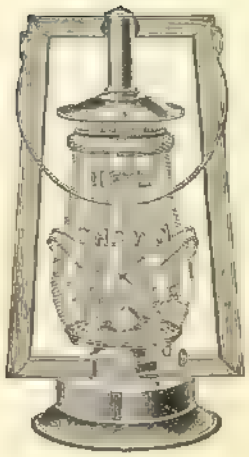
To the average reader it might seem that the 100 H. P. racer was so much the more powerful machine that it could do far better in every way than the smaller 1906 Premier cars. Machine designers are, however, well aware that of two similar machines the chances of breakage and failure generally are all against the larger construction, and all in favor of the successful operation and long life of the smaller machine, which is certain to be by far the more substantial of the two, having the most weight for the power developed, and hence the greater rigidity and more adequate support throughout, and being in every way subjected to much the smaller proportional stresses.

The actual fact is that the greater the piston diameter is, the more easily and surely the engine can be air-cooled so far as actual installations of air-cooled cylinders in cars show up to and including the 7 inch

than the smaller one, although it may be burning four or five times the fuel consumed in the same time by the smaller cylinder. Most of the superabundant heat goes out of the exhaust, and has neither time nor opportunity to heat the cylinder walls, because the greater part of the burning charge never touches the metal of the engine at all. The exhaust passages are by far larger, proportionately, in the large cylinder than in the small one, and the percentage of total heat given to the metal of the motor is therefore much less in the large cylinder, while the large cylinder has very much the more radiating surface, both actually and proportionately, than the small cylinder.

George A. Weidely, designer of Premier cars, bought his first car in 1898, and at this same time had abandoned his first steam-motor car, and had begun work on cylinder-fired motors, being backed by Mr. H. O.

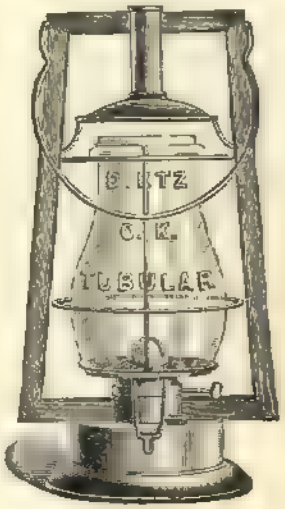
Lanterns.



Code Cerchione. Per Dozen

Crown, Square Tubular, with Guard, No. 1 Burner, No. 0 Globe, . . $9.00

Weight, 35 lbs. Per Dozen.



Code Cerconicus. Per Dozen

O. K., Square Tubular, Hinge Attachment, with Guard, No. 1 Burner, No. 0 Globe, . . . $9.50

Weight 34 lbs. Per Dozen

Code Cercopibus. Per Dozen

Monarch, Round Tubular, Side Lift, with Guard, Heavy Bottom, No. 1 Burner, No. 0 Globe, . . $9.50

Weight, 37 lbs. Per Dozen.

Code Cercosaure. Per Dozen

Royal, Round Tubular, Side Lift, with Guard, Large Fount, No. 2 Burner, No. 0 Globe, $13.00

Weight, 33 lbs. Per Dozen

Code Cercosome. Per Dozen

Crystal, Square Tubular, Side Lift, with Guard, Side Braces, Glass Fount, No. 1 Burner, No. 0 Globe, $13.00

Weight, 45 lbs. Per Dozen

Code Cercueil. Per Dozen

Clipper, Round Tubular, Side Lift, with Guard, No. 1 Burner, No. 0 Globe, . $9.50

Weight, 36 lbs. Per Dozen.

One Dozen in a Case

Lanterns.

Code Cercurus. Per Dozen

No. 1—Blizzard, Round Tubular, Side Lift, with Guard, No. 1 Burner, Blizzard Globe, ... $13.50

Weight, 44 lbs. Per Dozen.

Code Cercurum. Per Dozen

No. 2—Blizzard, Round Tubular, Side Lift, with Guard, No. 2 Burner, Blizzard Globe, ... $16.00

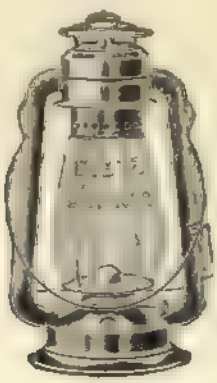
Weight, 52 lbs. Per Dozen.

Half Dozen in a Case.

Code Cerdeamos. Per Dozen

No. 3—Boy, Brass, No. 0 Globe, No. 0 Convex Burner, ⅜ In. Wick, ... $5.00

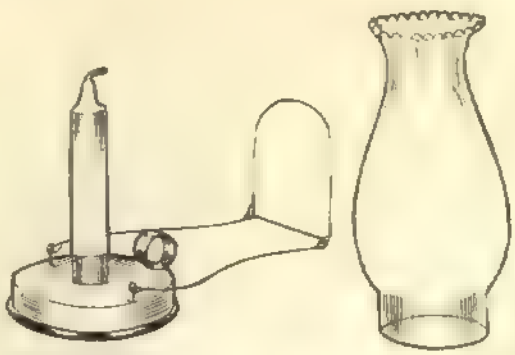
Weight, 16 lbs. Per Dozen.



Code Cerdearon. Per Dozen

No. 10—Junior, Round Tubular Side Lift No. 1 Burner, Junior Globe, . $12.00

Weight, 21 lbs. Per Dozen.



Code Cerdonibus. Per Dozen

No. 12—Candle, Tin Base, Wire Handle and Side, No. B Chimney, . . $2.00

Weight, 2½ lbs. Per Dozen.

One Dozen in a Case.

Conductors' Lanterns.

Code Cercalen. Per Dozen

No. 3—Conductors', Brass, Nickel Plated, Hinge Top, White Globe, ⅞ In. Ratchet Burners, Fitted to Burn Railroad Signal Oil, ... $72.00

Weight, 40 lbs. Per Dozen.

Railroad Lanterns.

Code Cerebral. Per Dozen

No. 39—Vulcan, Double Guard, Hinge Top, Wire Bottom, No. 1 Ratchet Burner, No. 39 Globe, $11.00

Weight, 45 lbs. Per Dozen.

Code Cerebrales.

No. 39B—Vulcan, Brass, Double Guard, Hinge Top, Brass Bottom, No. 1 Ratchet Burner, No. 39 Globe, 30.00

Weight, 48 lbs. Per Dozen.

Car Inspectors' Lanterns.

Code Cerebrum. Per Dozen

Acme, Tubular, with Hood, 5 In. Silvered Glass Reflector, No. 1C ⅝ In. Long Burner, No. 0 Globe, ... $23.00

Weight, 38 lbs. Per Dozen.

One Dozen in a Case.

Dash Board Lanterns.

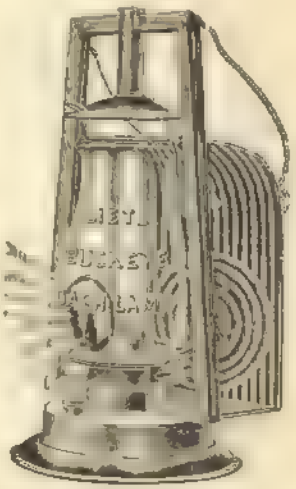
Code Cerestra. Per Dozen

No. 0—Beacon Reflector, Tubular, with Hood 5 In. Silvered Glass Reflector No. 1 C 5/8 In. Long Cone Burner, No. 0 Globe, ... $22.00

Weight, 35 lbs. Per Dozen.

Half Dozen in a Case.

BAKER & HAMILTON



Code Cereris. Per Dozen

No. 13—Buckeye, Tubular Japanned Tin Reflector, Bull's Eye Lens, No. 1 Burner, No. 0 Globe, . . $13.50

Weight, 52 lbs. Per Dozen.

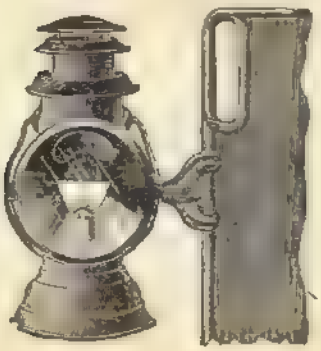
Half Dozen in a Case.

Code Cermall Per Dozen

No. 2—Blizzard, Tubular, Japanned Tin Reflector, No. 2 Burner, Blizzard Globe, ... $20.00

Weight, 70 lbs. Per Dozen.

Half Dozen in a Case



Driving Lamps.

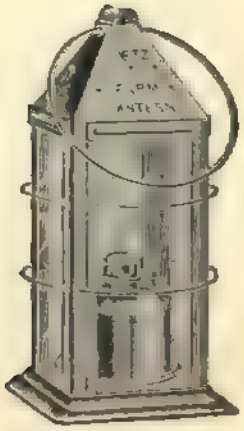
Code Cernead. Per Dozen

No. 35—Tubular, Japanned, Silver Plated Reflector, 3/8 In. Burner, with Holder, ... $42.00

Weight, 32 lbs. Per Dozen

One Dozen in a Case

Lanterns.



Code Cernentem. Per Dozen

No. 14—Farm, Square, to Burn Candle, Lard, Oil or Kerosene, . . . $7.00

Weight, 30 lbs. Per Dozen.

One Dozen in a Case.

Code Cerniculum. Per Dozen

No. 18—Police Japanned, 2¾ In. Bull's Eye, ... $5.00

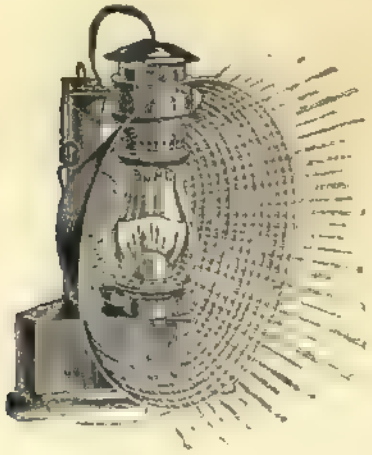
Weight, 40 lbs. Per Dozen

Code Cern

No. 20—Police, Japanned, 3 In. Bull's Eye, 6.00

Weight, 46 lbs. Per Dozen.

Tubular Search Lights.



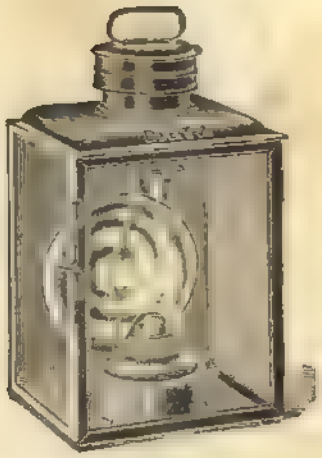
Code Cernophora. Per Dozen

No. 100—Bull's Japanned, 6 In. Nickel Plated Reflector, No. 2 Burner, No. 0 Globe, . . $33.00

Weight, 29 lbs. Per Dozen.

Half Dozen in a Case

Station Lamps.



Square.

	Each
Code Cernuliamus. **No. 1**—8 In. Wide, 10. In. Deep, No. 1 Burner, 7 In. Reflector, .	$2.50
Code Cernudas. Weight, 18 lbs. Each.	
No. 2—10 In. Wide, 12 In. Deep, No. 2 Burner, 8 In. Reflector, ...	2.90
Code Cernulo. Weight, 21 lbs. Each.	
No. 3—11 In. Wide, 15½ In. Deep, No. 2 Burner, 10 In. Reflector, . . .	3.30
Weight, 33 lbs. Each.	

One in a Case.

Triangular.

	Each
Code Cernulorum. **No. 4**—22 In. High, 16 In. Wide, 13 In. Deep, No. 3 Burner, 10 In. Reflector	$8.50
Weight, 30 lbs. Each.	

Street Lamps

	Each
Code Cerollo. **No. 3**—Globe, Tubular, Painted Green, No. 3 Burner, No. 3 Globe, Automatic Extinguisher, ...	$6.00
Weight, 25 lbs. Each.	

One in a Case.

Hanging Lamps.

	Each
Code Ceropache. **No. 3**—Globe, Tubular, Painted Green No. 3 Burner, No. 3 Globe, Automatic Extinguisher, ...	$6.00
Weight, 25 lbs. Each.	

Lantern Globes.

Tubular.

Code Cerostoma. Per Dozen
No. 0 —White, ... $1.00

Code Cerotarium.
No. 0R—Ruby, ... 3.00

Average Weight, 18 lbs. Per Dozen.

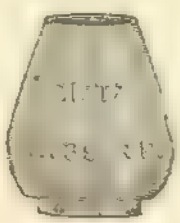
No. 0—One Dozen in a Box; or Five Dozen in a Barrel. No. 0R—Five Dozen in a Barrel.

Bull's Eye.

Code Cerradizo Per Dozen.
No. OBE—White. $2.00

Average Weight, 20 lbs. Per Dozen.

Five Dozen in a Barrel



Railroad.

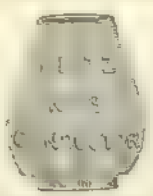
Code Cerrare. Per Dozen
No. 39—White, ... $1.50

Code Cerrava
No. 39—Flint, No. 220, ... 3.00

Code Cerravano.
No. 39—Ruby, ... 4.00

Average Weight, 15 lbs. Per Dozen.

Five Dozen in a Barrel



Conductors.

Code Cerrones. Per Dozen
No. 3—White, ... $6 00

Average Weight, 14 lbs. Per Dozen.

Code Cerolas Per Dozen
Blizzard, White, ... $1.40

Average Weight, 21 lbs. Per Dozen.

Four Dozen in a Barrel.

Junior.

Code Cerrabamos. Per Dozen
Junior, White, ... $0.90

Average Weight, 11 lbs. Per Dozen.

Boy.

Code Cerrajear Per Dozen
Boy, White, ... $0.75

Average Weight, 8 lbs. Per Dozen.

Thirty Dozen in a Barrel

Street.

Code Certabundi. Per Dozen
No. 3—White, for No. 3 Street and Hanging Lamps, ... $7.00

Average Weight, 55 lbs. Per Barrel.

Two-Thirds Dozen in a Barrel.

The Marmon 1906 Touring Car

HUGH DOLNAR

Nordyke & Marmon Company, Indianapolis, Indiana, U. S. A., will offer three models of cars for the season of 1906, one a high-class runabout, the touring car here illustrated and described, and a higher powered larger touring car, of identically similar construction throughout, model not yet completed.

Nordyke & Marmon Company, one of the largest and best-known mill-furnishing concerns in the United States, began in 1851, Richmond, Indiana, with very few workmen as millwrights, removed to the present site in Indianapolis in 1870, and now have a pay roll of 750 names.

Nordyke & Marmon Company took up the motor car in 1902, and sold their first car in 1904, producing seven cars in that year, and sold a considerable number of cars in 1905. From the first the "Marmon" cars, as the automobiles produced by this company are named, have been driven by air-cooled motors, and have used the planetary speed change, and the same 90 degree angle placing of the cylinders and the double three point suspension of the body appeared in the first Marmon models.

The air-cooling has been a success from the first, the angular placing of the cylinders has advantages, and the three point suspension and independent motor and transmission framing and support, which give a straight line drive without universal joints, has been worked out to the satisfaction of the Marmon car designer, Mr. H. C. Marmon, son of the original founder and mechanical director of the firm.

As a designer, Marmon's work is marked by an inclusive survey of the entire area of the mechanism in hand, and stresses and effects set up in one part of his structure are often carried a long way through rigid transmitting members before they are finally resisted. This is particularly shown in Marmon's handling of the speed change clutch thrust, and the bevel gear stresses. Complete mastery of construction is shown in the Marmon rear axle assemblage, in which the difficult problems of lightness and strength combined, ready assembling and disassembling and reduction of friction to lowest terms are met very perfectly, and a very original method is employed to combine steel tubing and aluminum castings in the rear axle sleeve and gear casing, by which an extremely strong and light propulsion assemblage is secured.

NOTABLE FEATURES.

The air-cooling cylinders at 45 degrees, the improved planetary speed change, especially in the points of gear-strength, friction reduction and perfected brake action are worthy of close study. The double three point body suspension, patented, is highly ingenious, and makes the Marmon cars ride smoothly on the roughest roads. This suspension system is treated in a separate article following this description. The direct transmission system, which requires no "Hooke" or "universal" joints, also patented, is manifestly correct car-driving practice.

In body design and construction Marmon is believed to have been the first to apply the side entrance door, and is now making a larger use of aluminum castings in body construction than has been noted by the writer elsewhere. Every detail of Marmon's work is marked by careful study and originality of resource, which makes the whole Marmon car highly interesting both to the progressive designer and the purchaser who seeks a car fortified by the most patient

Fig. 1.—The Marmon 1906 Touring Car. Wheel base 90 inches, gage 56½ center to center of tires. Tires 32x4 inches. Motor 4 cylinders, air-cooled 4¼x4 inches, set at 90 degrees. Body all aluminum castings, front board, front seat, tonneau seat and tonneau support, excepting the front seat support only, which is of wood, built on the wooden sills to which the tonneau is fixed. Four passenger car, individual seats in front, rear seat will take three passengers comfortably. Weight 2,250 lbs. Price $2500 00 including two gas lamps in front, generator, two dash oil lamps, one tail lamp, one horn, Willcox velvet carpets and two foot stools in tonneau and full tool equipment, complete except spare tires, for extended touring.

consideration all the very best of materials and workmanship against the many mishaps of motor-car driving on American highways.

THE MARMON REAR AXLE.

The most remarkable kinetic feature of this construction is perhaps the manner in which Marmon takes care of the bevel gear and speed change clutch thrusts. Instead of simply applying costly and adjustment demanding ball bearings at the nearest points, Marmon patiently surveys his whole field, and finds a hitherto undiscovered possibility of rolling surface resistance, without balls or ball-races—almost without sliding friction.

The most original construction feature is the manner in which the aluminum casing members are united to the steel tube sleeves of the rear axle casing. It is needful that the aluminum casing sides and the steel tubing should be held together beyond the possibility of separation save by by destruction.

Marmon gives the casing hubs a long bearing on the steel tube, and pours the casing side on the tube laid in the green sand mould, and so makes this difficult union in the sand, with no finishing cost. The shrink-excess of the aluminum holds the two dissimilar materials together so firmly that the aluminum has to be chipped off with hammer and chisel to remove it. Tests to destruction show more than a 10 to 1 factor of safety for this gear casing.

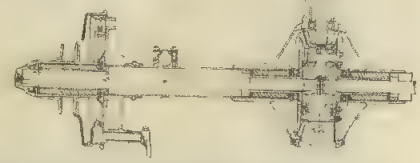


Fig. 2. Marmon Rear Axle. This is an original design by Marmon, and embodies several unique structural features. Extreme simplicity and accessibility are secured by the use of a single [illegible] gear. The Marmon patented [illegible] is a practically [illegible] and [illegible] [illegible] bevel gears. The inner ends of the axle shafts engage [illegible] splines. Driving sleeves separate these and electrically welded to the axle housings [illegible] [illegible] [illegible]

flat-joint seats is fixed to each chassis frame outside, and the long struts, steel tube bodies, drop forged globe and flat yoke ends pinned and braced in, non-adjustable, are jointed to the axles and to the side brackets globe ends, capped, and having removable liners to take out for lost motion.

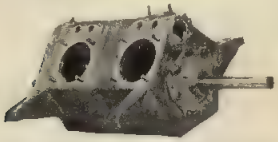


Fig. 4. Marmon 1906 Aluminum Motor Base. Showing shaft extension for camshaft drive, fan pulley and starting gear. Oil entrance to the hollow shaft oiling system is shown in front end of shaft.

THE MARMON CHASSIS FRAME.

This is of thin steel, held by a long former in a special large fixture and formed to channel section by hand-hammering at present. The girts and braces are of the same steel narrower channel section to slip into the side frame channel. The side frames have wood fillings, flush thickness, in the middle part. The chassis frame dimensions are 117 ins. over all, 36 ins. rectangular, ends mitered, inside angle plates and gussets and long 45 degree braces, and added to all this, the front is braced by the right angle ends of the lamp brackets.

The front springs are 36 ins., with 5 leaves graded. Rear springs 38 ins. long, 7 leaves.

gear and driving shaft; and third, the body and paying load, or passengers. Vertical lift and drop of each of these three distinct masses involves waste of propulsive effect, motor power, and hence should be avoided to save fuel; relative lift and drop of the motor assembly should be avoided to save driving power and eliminate the barbarous universal joints; while bouncing of the body should be avoided to save power and to carry the passengers in comfort. The pneumatic tires alone must level up the road and avert vertical movement of the first or carrying system; one three point system can take away a large part of the body and passenger rise and fall, and a second three-point suspension system, as shown in Fig. 4, can similarly reduce the motor system needless rise and fall to the lowest terms permitted by road surface defects and distortions.

Marmon has placed his body and his motor and speed change and driving elements on two three-point support systems, and so has reduced needless vertical mass lift and drop to the lowest practicable limits. This gives the Marmon cars the least wear, least bouncing and least power demand for translation over a given road surface, less objectionable resultants than possible with any other car the writer has seen, making, in a highly desirable manner, for fuel economy, small up-keep charges and easy riding to an extent which it now seems must command the attention of buyers and users alike.

Marmon began with air-cooling, and has found it uniformly satisfactory. The com-

Fig. 5. Marmon Motor, side, showing cylinder placing and camshaft gear cover and piping. The carburetor is not described. It has novel features not yet protected.

PROPULSION SYSTEM SUPPORT.

A motor car consists, broadly, of means for supporting and driving three distinct masses, first the wheels, springs, axles, struts and chassis under-work assembly generally; second the propulsive system, the motor, change

pression is about 45 lbs. gage. Decrease if combustion chamber space below limits used leads to premature firing and wholly unsatisfactory results. The Marmon 2150 lb. car, with 4 passengers up and full equipment, perhaps 3,000 lbs. total load, does an average

of about 15 miles to the gallon of gasoline, or very little different from the best work of high compression water-cooled 4-cycle gas engines, 4 cylinders.

The sole object of high compression is to save fuel, as low compression means easy work on the whole propulsion system, while high compression deals always with ultimate effects, hard on every part of the car, and of necessity far more destructive than the medium efforts of the low compression car motor.

Placing the cylinders at 45 degrees is favorable to motor length reduction, and Marmon's arrangement permits the placing of a 4-cylinder motor in about the length occupied by 2 cylinders tandem, same bore and stroke. This system also permits the use of long connecting rods, and a generally favorable disposition of parts, including short and direct piping, short cam and crank shafts, and compactness in general, combined with ample air circulation space.

The motor is supported on the 3-point propulsion system support, and drives the planetary shaft by a solid-jaw clutch, fitted close only service distortion being an increase of head-end diameter in work, which does not reduce the power of the motor.

The Marmon cylinders are made in dry sand, planed flasks, taper pins replaced by taper bolts before pouring. These flasks and the patterns part in the middle, and the rib spaces are first rammed up, two makers working together, one each side, then the core ribs are nailed with wire nail "gagers" and the iron flask-half is set on and rammed up, turned over and the pattern drawn, leaving the flask-half with the green core-sand mould in it, ready for baking in the core oven. The cylinder head projections are had by setting a pair of false cores in the dry sand mould thus formed. The whole time on one cylinder mould is about five hours of skilled labor. The rough cylinders weigh about 32 or 33 lbs. The cylinder bore is finely finished, straight from open end to head, no enambering at combustion end, whole combustion chamber finished, head and all

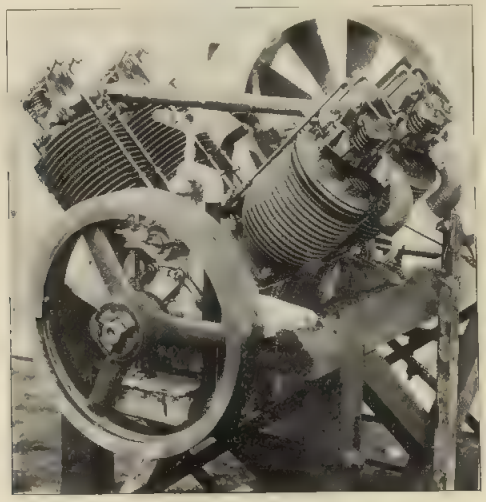


Fig. 8.—Marmon 4-cylinder motor, fly wheel end, oblique.

MARMON CYLINDERS.

It is of the first importance that a finished gas-engine cylinder should be round and straight, a true cylinder. The proper practice to obtain these conditions is observed in the Marmon cylinder foundry, with the result of obtaining round straight cylinder bores, which maintain this only correct form in work, the

MARMON PISTONS.

These are straight, no taper are one or two thousandths only smaller than the cylinders, and have four rings, three above the pin and one below. The rings are eccentric, 45 degrees lap cut

PISTON FITTING.

The pistons are rough turned and then heated to dull cherry red, cooled in the open air, then ground, and finally fitted by hand-lapping in the cylinder with ground glass and oil

SPEED CHANGE

The notable design features of this planetary speed change, which has no originality of general conception, are the large diameters, the enclosing of the entire system in a capped casing of aluminum, carrying a deep oil pool in the base, and the fitting of a large V-clutch ring of bronze for high-speed, and bronze metal to metal shoes for the drum brake bands. The great area of high-speed clutch engaging surface permits an infinite range of slipping speeds, so that the driver can pick his way through a crowded street on the high gear and go as slowly as he pleases, and at the same time be all ready for a rapid movement as occasion permits or safety demands sidered, and all the complex conditions are fully met.

MARMON STEERING AND SPARK AND THROTTLE CONTROL.

Marmon places the spark and throttle inside the steering post, carried in stationary supports, and fitted with outside regulated adjustment friction retention. The worm gear sector is divided in its radial mid plane and the two parts have a screw adjustment on each other circumferentially, screw retained, to take up wear.

The whole steering post construction is thorough and substantial, and this vital detail receives the designer's most careful attention at every point.

Fig. 7. Marmon planetary speed change and aluminum casing and cap for same. There is no opening in the casing to allow to shaft formals, and the lowerpart of the whole speed change system revolves in an oil pool. The brake bands are bronze, six in one piece, self rollevling, so that they do not touch the brake drums when disengaged, fitted metal to metal to the grey iron brake drums, and engaged by rocker-arm rotated face-cams, made to worken by single hand lever at driver's right. The clutch is a substantial bronze V-ring of an angle determined by trial, the smallest that will release, engagement surface ¾ in. deep, outside cone limited to 24 in. working to get iron running in oil pool. Clutch ring carried on a steel cross, ⅜ thick arms 2 1/16, to the end crank and sliding cone engagement by pressure on the cross arms, producing a soft partial engagement, and making a most satisfactory slipping drive. Three planetary 3-gear pinions

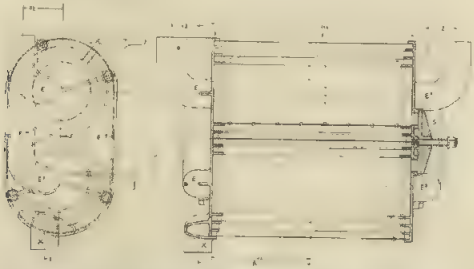


Fig. 8. Marmon Double Muffler. This is a multiple 4-shell muffler. The aluminum heads are shown in full size in section, and dimensions are given. Two outer shell is sheet iron, seamed, and is triple, two sheet iron shells enclosing an asbestos sheet. E, E1, E2, E3 are five individual cylinder exhaust removable cap-ended with heavy exhaust cams that change over the muffler intakes in sequence in theirfal one crank shaft revolution, time apart. Two stage E4 E5 common to both mufflers, opens through X to the muffler exit. S is a spring loaded safety valve and cut-out. Each system consists 3 sheet iron shells, inner shell perforated in the middle, open to the second shell, which has holes at each end, open to the third shell, with holes in the middle, open to chamber S6. Weight about 14 lbs. Back pressure not enough to measure by ordinary methods; silencing complete. The aluminum heads adapted to a multiple cylinder muffler satisfies all conditions of the silencer problem and is especially adapted to the 4-cylinder gas engine.

THE MARMON MUFFLER.

This is an elaborate construction, notable as meeting individual cylinder exhaust requirements in a 4-cylinder gas engine. Each cylinder has the sole use of one entire muffler system during one crank revolution time, and no cylinder can deliver its exhaust pressure effect to the exhaust pipe of another cylinder. The whole muffler action is functionally con

Fig. 11 shows the top of the Marmon steering wheel and the spark and throttle finger operated levers, friction retained, so as to take any position and stay there, without pawl and ratchet action.

LUBRICATION.

No sight feeds or exact oil measuring devices, and no grease cups are used. The motor oiling is by a 2-pinion oil force pump,

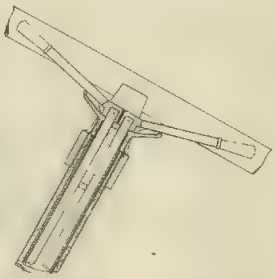
submerged in oil pool in the applied bottom of the motor frame, which forces oil through the shaft and cranks and rods to lubricate the main bearings, piston pins and crank-wrists and rod ends. The cylinders and cam shaft are oil mist lubricated. Lubrication ceases when the motor stops. No oil used on the motor is wasted.

MARMON CONTROL.

Two rocker levers on top of hand wheel regulate the spark and throttle. The hand lever gives high and low speeds, and when in neutral mid-position, pressure on the left pedal obtains the reverse. The right pedal applies the brake.

BRAKES.

Marmon does not trifle with the retardation problem, but fixes on applied grey iron internal brake drum to his rear wheel hubs, and gives this brake drum no less than 14½ ins. diameter x 1½ ins. face, and fits internal metal-to-metal rocker-cam expanded bronze brake shoes to these big drums, which can stop the car when the driver wants to stop it. The reverse is used as an emergency brake.



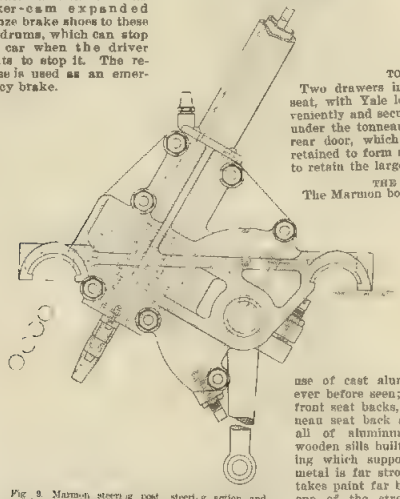


Fig. 9. Marmon steering post steering action and control rockers hand levers, Globe-end and wrist bell-cranks and globe-end rods are used from the two permanently placed rockers enclosed in the revolving steering column, rockers supported by stationary inner tube 62. The rockers pass through a split and pinching-screw adjusted bronze liners inside the tube 62, screw accessible from without so as to regulate retaining friction to suit. These stationary rockers require no compensating devices, and as they are enclosed in the steering post the device is smooth outside. The hand levers work in a double stop-sector on top, no ratchets. The steering is by a multiple thread hand worm carried to the steering gear, engaging a quadrant worm-gear sector pair; screw adjusted at each other to take up lost motion. The steering arm out-board bearing, 31, well supports this hard worked and vitally important member. The whole steering and spark and throttle control is a noteworthy example of elegant and thoroughly good machine design and construction.

TOOL STORAGE.

Two drawers in front, under the driver's seat, with Yale locks, carry small tools conveniently and securely. A large compartment under the tonneau seat is reached through a rear door, which drops down and is chain retained to form a convenient shelf, or closed to retain the larger tools.

THE MARMON BODY

The Marmon body makes the most extended use of cast aluminum that the writer has ever before seen; the dished front board, the front seat backs, the tonneau doors, the tonneau seat back and the tonneau base being all of aluminum-nickel alloy castings on wooden sills built up of wood with the framing which supports the driver's seat. The metal is far stronger, far more durable, and takes paint far better than wood, and this is one of the strongest and best car bodies which can be produced.

The illustration shows the large aluminum castings which go to make up this car body. This company makes all its own aluminum, brass, bronze and iron castings, and buys steel castings and drop forgings.

"ON THE ROAD."

The unpaved streets of Indianapolis are bad as any road, hard enough to hold up vehicles, can be. Mud, ruts, bumps, hills and hollows, big and little, stones, gullies, every possible angle and inclination of surface

abound. Now the underlying surface is hard, never more than six or eight inches or so of mud and water before wheels come to substantial bearing, but save for this good hard bottom, untouched prairie would give a far better driving surface than that of the average Indianapolis dirt street surface of today!

Fig. 10. Marmon steering post, top view, showing spark and throttle rocker levers, finger actuated, rockers stationary, so that the arms do not move with steering wheel. Friction adjustment rotention

The Marmon double three-point suspension cars can actually be driven over these fearfully variegated Indianapolis road surfaces without the slightest discomfort to passengers at a 15 to 25-mile rate So long as only one front or rear wheel goes up or down at the same time, the car body merely sways gently and comfortably, no matter how deep the rut or how high the bump may be. The car does not mind any twist in road surface at all, and no one-wheel lift or drop on either side can bounce the car body. To avoid the mitigating effect of Marmon's perfectly acting double three-point suspension, a pretty deep trench or high bump straight across the road-way must be had, and in about thirty miles of Marmon car riding this was found but once. A very small angle of the drop or lift suffices to bring the double three-point support into action and carry the Marmon car body smoothly through or over anything that even the streets of its own town can afford, and where the impediment was the same on both sides of the road a slight swerve in steering enabled Mr. Marmon to always lift

Fig. 11. Marmon oil pool base with two-pinion oil force pump. This force pump delivery is piped to a stuffing box and central bore of the crank shaft. A large oil way leads through the crankshaft and into the main bearings and rod ends; the rods have central holes leading oil to the piston pins. Oil, under pressure, flows from within the crankshaft into the three main bearings, the crank bearings and piston pin bearings. The system is ideal. The main body of lubricating oil is in this base below the sweep of the rod ends, and unnotched connecting rods. Oil from rods and cranks drops back into the pool, and the pump intake opens to the pool. Splash lubrication is not used. The cylinders and camshaft are oiled by oil mist produced by the oil which comes from the rod ends in motion.

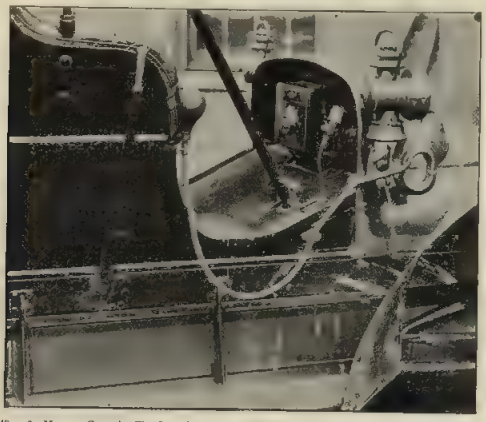


Fig. 12.—Marmon Control. The front board is aluminum, dished, and houses the coil box and speed indicator. The inside pedal applies the reverse when the hand lever is in mid-position, neutral. The outside pedal applies the rear hub brake. High and low speeds are obtained by forward and rear extreme positions of the hand lever

or drop one front wheel a little in advance of the other, so that the car body felt the level variation but slightly

This double three-point suspension enabled the car to negotiate both the north and south "Michigan Hills" with ease on the high gear. The north hill is the worst of this villainous pair, it being a long, hard grade with an extremely uneven surface and a sharp turn near the top, and the car took this hard stunt like a duck riding waves, smoothly and with an easy swaying not at all uncomfortable to the passengers. This double three-point peculiarity of the Marmon car enables it to go over extremely bad roads much more rapidly than is agreeable with any other car-body suspension and also greatly lessens maximum tire load and the propulsive effect demanded and is right, absolutely, in every way. The short wheel-base, 90 inches only, makes the car very handy, the control is simple and sure, the very great brake diameter gives safety and the double three-point suspension makes steering easy on the gear, as the body-

Fig. 13. Tool receptacle under rear seat of Marmon car has hinged door, chain supported in horizontal position when open, making a tool shelf when tools are in use. Pintel with lock.

Fig. 14 Marmon 1906 aluminum castings Car-body parts.

lift in front is only half that given a four-point supported car-body by an equal wheel plane distortion. The writer's attention while riding in the Marmon was directed mainly to the body movement, but the car was also driven, was under admirable control at all points, and highly satisfactory in every way

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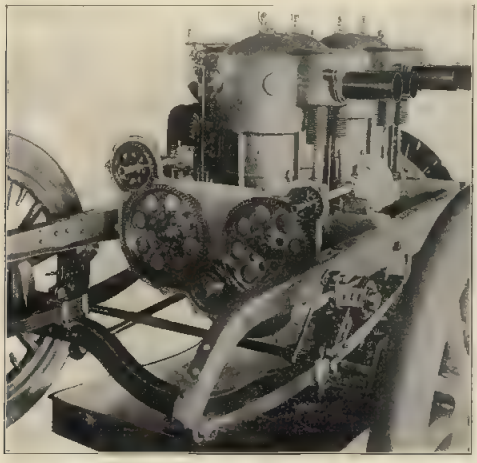
On September 1 the mechanical branch of the Association of Licensed Automobile Mfgrs. held a meeting in the association's rooms, 7 East Forty-second street, New York City. The subjects of bearings and clutches were discussed

Automobile owners of Jamaica, L. I., have formed the Jamaica Automobile Club. William Yale was chosen president, Percy G. James vice-president, William Freeman treasurer, Chas. Crossman secretary. The annual dues were placed at $10 and the entrance fee at $5.

W. J. Morgan, 116 Nassau street, N. Y., for many years identified with the automobile industry will issue about Christmas, a year book for motorists called Morgan's motoring Manual which will be published annually thereafter. It will contain 1,000 pages and be bound in a black and gold cover

Senator Morgan has secured the Coney Island Boulevard for Oct. 18th for the 1-mile time trials straight away for the Thos. Dewar Cup. Ford & Christie have challenged for it, and will compete, and the event will be open for entries from anyone. The trials start at 9 A. M.

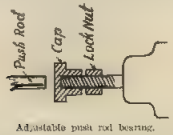
hydraulically forged and then put through a secret toughening process. The two middle crank pins move together and the two end ones together. These bearings support the shaft, which like all well built four throw crank



The front of the Locomobile Racer, the first American car to score in an International Road Race.

shafts is balanced. After each operation these shafts are loaded on trucks and placed before an inspector, previous to the next operation. Two cam shafts, one on each side of the engine, are used. All cams are made integral with these shafts. The inlet cam shaft also carries the helical ignition cams integral with it, as will be described later under sub-heading—"Ignition."

These shafts run in liberal bronze bearings at each end and are driven by the two to one



Adjustable push rod bearing.

phosphor bronze spur gears at the front of the engine, as shown in photograph. All gears are encased, this being a special feature on the Locomobile from its beginning. All valves are of nickel steel and interchangeable. Stem and heads are of one piece. The valve springs are the usual coil or helical type. The push rods run in square bearings to prevent rotation, and by a neat lock nut and screw device, as shown in sketch, are made adjustable in length. The lower end carries a hardened steel roller. For the quick removal of the valves a special tool resembling a tuning fork with a long handle is provided. On the side of the cylinders just behind each push rod, is a small lug. By placing the forked end of the tool straddle of the valve stem and under this lug, the spring may easily be pried upward and the key and washer removed, allowing the stem to be pulled up through the spring.

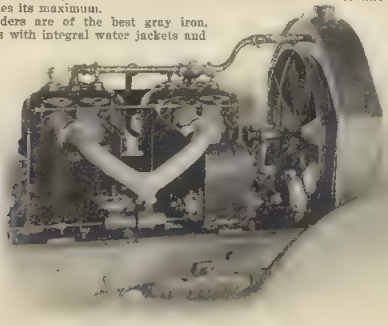
The inlet pipes are of aluminum, cast in Y form, as shown by photo 5, and run from the carburetor to a point in each pair of cylinders, between the valve chambers, so that each cylinder has an equal advantage in drawing in its charge. These pipes are held by hexagonal headed cap screws, and their joint with the cylinder made tight by a special copper-covered asbestos gasket. The exhaust pipes are made of cast iron, bolted on, and also made tight by the use of these gaskets.

GOVERNOR.

The engine speed is controlled by a centrifugal ball governor acting on the throttle. This holds the engine, when running idle as when first started or when the clutch is thrown out, at about 150 revolutions. The throttle is of the balanced piston type, so that it is extremely sensitive. The hand throttle on steering wheel controls the compression of a spring against which the gov-

with the flywheel of the engine to be tested. In this way the conditions are as nearly as possible the same as when the car is being run. A suitable switch board is used in connection with each plant. All tests are of considerable duration and not simply flash tests, which might not be a true index of power. The motors are run at moderate speed and tests recorded, then at increased speed and several records made, and so on until the motor reaches its maximum.

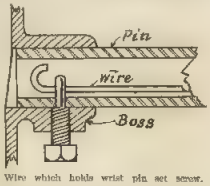
The cylinders are of the best gray iron, cast in pairs with integral water jackets and



1906 Locomobile. The right side of the motor, showing the mechanical valve operating mechanism, fan, radiator bus-bar running lengthwise of the motor above the valves, also the knife switch cut-outs for each cylinder on the bus-bar and the wiring connecting the magneto, carburetor, Y-shaped intake pipes, water connections, etc.

heads. This makes a very compact engine, as the bores of the cylinders are close together. Two cylinders are bored and the bases faced off at the same time on a horizontal boring mill, which insures their base being at right angles to their bore and their axes parallel. They are then placed in a special machine and ground with micrometer exactness to size. The crank case is of two parts, the upper and the lower part or pan. The upper, forming feet or arms for the support of the engine, has the cylinders bolted to it, and also carries the shaft bearings. This part in which strength is of the utmost importance, is a special formula maganese bronze casting which shows a tensile strength of about 83,000 lbs. The lower piece which acts merely as a pan to hold the splash, is of aluminum. This pan curves upward at the center forming a transverse partition dividing the lower half of the case into two compartments, to prevent the oil running to the rear when the motor is inclined. The pistons are of gray iron, cast with webs on the inside for strength and are extremely long, being 5½ in. on Model "E" and 8½ on "H." These pistons carry four rings at the upper end, are ground straight and then from just below the bottom ring to the top, they are ground to a taper, the top of Model "E" being 10-1,000 and Model "H" 12-1,000 smaller than the rest of the piston. This prevents binding which might ensue from the expansion due to the excessive heat at the upper end. Oil grooves are cut at the bottom of the pistons to carry the oil up into the cylinder. The piston rings are turned eccentric, diagonally cut, compressed on a special machine, and ground to an exact circle. They are then ground all over to fit the piston grooves. For all grinding processes carborundum is used and not emery.

The connecting rods are made of special formula steel, drop forged and "I" section. The lower end has the usual removable cap which is held by two bolts with special threads, lock nuts and cotter pins. A split bronze bushing which is made adjustable by the use of several thin copper shims, is used



Wire which holds wrist pin set screw.

at the crank pin end, while at the wrist pin end, an unsplit bushing is employed.

The wrist pin is steel hardened and ground, made hollow, and held from side slip by a steel wire, which is inserted through holes in the end of the retaining set screws, one at each end of the wrist pin. These set screws cannot come out without turning, and this the wire effectually prevents.

CRANK SHAFT.

The crank shafts are made of special steel

Between the clutch and transmission is a double universal joint of peculiar construction which can very easily be disconnected, thus allowing the speedy removal of the clutch and its shaft. This joint also provides flexibility sufficient to prevent any binding action due to sagging or weaving of the car frame. The accompanying cut shows clearly the clutch, double universal joint, the transmission, differential, and the running brake.

TRANSMISSION

The transmission is of the direct drive sliding gear type. Three speeds forward and one reverse are provided. The forward gear of the sliding gear pair has an internal gear cut in it which when brought forward, locks with the teeth of a gear keyed on the clutch shaft, and thus locks the clutch and driving shaft together, giving the direct drive on the high gear. In the meantime the lay shaft is rotating idly The next motion of the sliding gear pair toward the rear brings the forward one of the pair into contact with the second gear on the lay shaft producing the intermediate speed. Upon sliding the movable gears still further backward, the rear one of the pair meshes with the small third gear on the lay shaft giving the low speed. By moving the sliding gears still further backward, the rear one meshes with a small gear driven from the lay shaft, but not shown in the cut, thus bringing three instead of two gears into the train which reverses or gives the backing speed. All bearings of the transmission are of the large plain hardened steel and bronze type, lubricated entirely by splash. The caps to these bearings are held by castle nuts. The bevel gear differential is in the rear of same case, is made of special case hardened steel, is very compact, and runs in oil. The ratio between the bevels is 31 to 19. The jack shaft extending outwardly on each side of the differential lies transversly to the car frame, and carries on its left hand end the running brake drum. Each end of this jack shaft is supplied with an Oldham coupling or joint to make doubly sure there shall be no binding. The chain is 1 in. pitch and 9-16 in. roller. The running brake drum is very large on both models, being 10 in. dia. x 3½ in. face on "E" and 12 in. dia. x 4 in. face on "H," cast iron against steel. These are made amply large not because it is necessary to hold the car but on account of the fact that the wear is much less and the life of the brake much longer. The drum is of cast steel. The running brake is operated by the push front pedal at the right hand side.

FRAME

The frames of both models are made of 3 16 in. pressed steel with wide triangular gusset plates at the corners. The sides of the frames are not bent in at the dash, but straight, which is the stronger form. The engine is supported upon cast manganese bronze pieces liberally webbed, whose ends are supported by the side members of the car frame. These are bolted in place, and lock nuts and cotter pins are used.

1906 Locomobile "he leather-faced clutch, the peculiar double universal joint the transmission gears, differential and the large running brake.

The springs are semi elliptic, both front and rear, and placed under the side members of the frame in Model "E" and outside in Model "H." The spring eyes are bronze bushed. The front springs of the smaller machine are 36 in. long, the rear 44 in. and are 1¾ wide. Model "H" front 40 in. and rear springs 44 in. long and 2 in. wide.

The wheels are made of selected second growth of hickory. Model "E" 32 in. x 4 in., and Model "H" 34 in. x 4½ in. The hubs are steel forgings.

The axles are made of a special formula steel, drop forged, and of "I" section, both front and rear. They are hand welded in the center. As to their strength, Mr. J. A. Klugman says, "We have never had a broken axle."

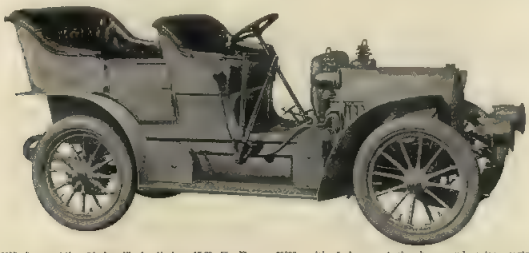
OILING

The oiling is accomplished by a sight feed mechanical oiler on the dash, belt driven by a pulley on engine. A plunger pumps the oil to the top of the sight feed devices, from which it flows by gravity to the different bearings and into the crank case of the en-

The 1906 Locomobile Cars

BY E. S. FOLJAME, B. S.

The Locomobile Co. of America, whose extensive plant is situated in Bridgeport, Conn., announces two touring car models, "E" and "H," for 1906. These cars, as will be seen from the following description, are built in the same thorough manner and with the same painstaking care to the important details which has placed the Locomobile in the fore front for reliability and good workmanship.



1906 Locomobile, Model E, 4-cylinder, 15-20 H. P., $3000, with 5 lamps, tools, horn and extra parts.

The specifications and dimensions of Model "E" are motor, 4-cylinder vertical, 3⅝x4½ in., 15-20 H. P., sliding gear, make-and-break spark by magneto, three speeds forward and one reverse, side chain drive to solid rear axle. Wheel base 93 ins., tires 32x4 in., side entrance tonneau, four or five passengers, weight about 1900 lbs.; price, including 5 lamps, tools, horn and extra parts, $3,000.

BODY.

The body is made entirely of laminated wood bent to shape. Model "E" has a pressed aluminum dash and "H" a hard wood dash. Both models have roomy side entrance tonneaus. The machines are upholstered to suit customers either plain or buttoned, but the Locomobile Company strongly advocate the plain leather on account of its cleanliness.

A very neat feature is a large storage box at the rear of the car, one side of which is partitioned off for tools and the other for cases for oils, hard and soft grease and gear case compounds.

MOTOR

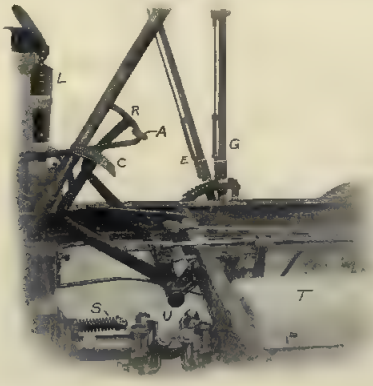
The four cylinder vertical motors of Models "E" and "H" differ only in size and power. Model "E" is 3½x4½ in., rated 15-20 H. P.

1906 Locomobile, Model H, 30-35 H. P. $5000, complete with 5 lamps, tools, horn and extra parts. The chain guard and sprockets are not shown

The specifications and dimensions of Model "H" are: Motor, 4-cylinder vertical, 4½x5½ in., 30-35 H. P., sliding gear, make-and-break spark by magneto, four speeds forward and one reverse, side chain drive to solid rear axle. Wheel base 106 ins., tires 34x4½ in., side entrance tonneau, five or seven passengers, weight about 3,000 lbs., with tools and equipment. Price complete, including 5 lamps, tools, horn and extra parts, $5,000.

and tested to 22 H. P., while Model "H" is 4½x5½ in., rated 30-35 H. P., tested to 40 H. P. and sometimes showing as high as 46 H. P. The testing department is equipped with two complete outfits. The method adopted as being most satisfactory is the dynamo test, using a water rheostat instead of lamps for absorbing the power generated. The ordinary cone clutch as used in the car is fast to the dynamo shaft, and engages

gine, which depends upon splash. In each compartment of the crank case is a stand pipe, which acts as an overflow when the oil level rises too high, thus keeping a constant level. These pipes are pitted with stop



1906 Locomobile—Side and foot levers. A accelerator pedal, G, gear shifting lever; C, clutch pedal; E, emergency brake lever, R, running brake pedal; T, gear box, S, clutch springs; V, universal joint, and L the lubricator.

cocks, which can be opened by a lever from the side of the car, there never being any necessity for reaching under. A hand pump is also placed on the dash used to supply extra oil in case of very hard going. The clutch as mentioned is provided with holes for oiling, and its shaft with a grease cup. The transmission and differential run in oil, as all the mechanism for disengaging the clutch is in the forward.

CONTROL.

On the steering wheel are the spark and throttle levers on separate notched quadrants. These quadrants are not fast to the wheel but are stationary and do not move with it, which is a great advantage in negotiating curves, as the operation of throttle and spark do not change relative to the driver. The throttle lever acts on the piston throttle by means of suitable rods. The spark lever pushes forward or pulls backward the inlet camshaft which carries the ignition cams as explained under sub-heading "Ignition." The accompanying illustration shows a small accelerator pedal, A, which throws out the governor action and at the same time opens the throttle. The front lever to the right controls the counter-shaft band brake, which is used for ordinary running and also throws out the clutch. The rear wheel internal band or emergency brake is applied through the side lever working on the ratchet, which also throws out the clutch. This brake is an internal expanding band of cast iron, acting against a steel drum. The rim of this drum casting also forms the rear sprocket. The cut shows the internal band or shoe in two pieces hinged at the top and supported from the center, and the long lever which by a toggle joint action forces the shoe against the inside of the drum, which is flanged to prevent them from slipping out sidewise. Two springs are also shown which draw the shoes away from the drum and prevent any friction when the brake is not

1906 Locomobile—Rear wheel brake drum and sprocket, which shows the internal expanding band or shoes and the springs which hold them out of contact with the drum when the brake is not in use. The combined drum and sprocket is bolted to the spokes of the wheel.

in use. A close view will also disclose a small rod running from the hub toward the rear of the drum. This rod is adjustable in length and gives a means of adjusting the

ernor acts in opening or closing the throttle valve. The normal tension on this spring with the hand throttle closed can be set by clamping a small collar in the proper position behind the spring. The tension in this spring is such that when the engine is running and the hand throttle shut off, the speed is very low, but of course it can be set so that the car will continue at any given speed up or down hill, regardless of road resistance.

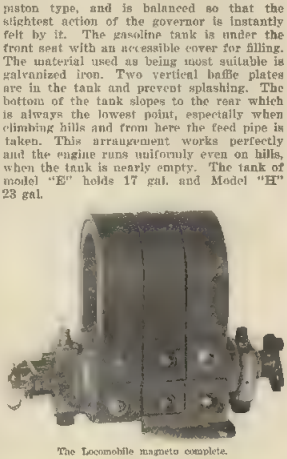
The fly-wheel is a solid iron casting with the weight well out toward the rim. Model "E" is 16 in. diameter, weight 80 lbs. Model "H" 18 in. diameter, weight 100 lbs. The fly-wheel is held by bolting to a flange.

COOLING

A Whitelock cellular cooler and tank combined fills the front of the pressed aluminum hood. This cooler is not rigidly braced at the top, as it has been found that when too rigidly fastened, the movement of the frame is sufficient to make the tubes leak. A centrifugal pump located at the left side of the engine and driven by a shaft carrying a gear at its end which meshes with the large gear driving the exhaust cam shaft is used to produce a forced circulation. On the dash is a small pressure gauge which shows at all times the pressure in the pipes and jackets, and indicates instantly any clogging or stopping of the pump. In the accompanying cut is shown a view of the engine and forward part of the "Locomobile Racer," whose performance in the late Vanderbilt Cup Race is now well known. The arrangement of the 2 to 1 gears is the same in this machine as in the models "E" and "H". The pump is shown at the left of the engine and the magneto on the right. The governor on models "E" and "H" is fast to the large gear at the left of the engine, which drives the exhaust cam shaft and the small gear on the pump shaft. The case of the pump is aluminum and the blades bronze. The water is drawn from the base of the cooler into the center of the pump and out at the periphery through a stand pipe to the lower end of the water jackets. The flow is then upward to the top and out through a cast bronze pipe which connects the tops of all the cylinders, thence by a rubber connection to the top of the cooler, downward to the bottom again from which the pump take its supply. Air is drawn through the cooler by a large seven bladed, ball-bearing, aluminum fan, driven by an endless sewn belt and supported on an aluminum frame which is made adjustable for tightening the belt. The cooling surface is relatively large and the water never boils. All drain cocks and shutoffs are so arranged that they jar shut instead of open. Nuts and bolts are case hardened to resist wear. These are minor details, but just such as distinguish a high from a low grade car. During my inspection at the plant, I noticed many instances such care in small details, testing and systematic arrangement of work as is employed only in the highest grade machine shops.

CARBURETOR

The carburetor is one of the float feed auxiliary air inlet variety made of aluminum and bronze of their own manufacture and suited to the engine it is to be placed upon. The float is of spun copper with a ball valve at the bottom. The float is permanently adjusted at the factory to give the proper level of the gasoline in the nozzle, a reference mark is placed upon the float stem for use if adjustment should be lost by taking apart. A drain cock and settling chamber are just below the float chamber. The nozzle may be cleaned by a copious flow of gasoline through it, or may quickly be entirely removed and blown through if anything lodges in it. Above the nozzle is an inverted stepped cone to assist in atomizing the gasolene. The automatic air inlet is made of aluminum and has a very delicate spring, is extremely light and acts promptly. It opens at an engine speed which will drive the car about 15 miles per hour. The carburetor may be flooded from the dash without removal of the hood. The carbureter takes either hot air from pockets around exhaust in winter or on damp days, or cold air if desired. The throttle is of the piston type, and is balanced so that the slightest action of the governor is instantly felt by it. The gasoline tank is under the front seat with an accessible cover for filling. The material used as being most suitable is galvanized iron. Two vertical baffle plates are in the tank and prevent splashing. The bottom of the tank slopes to the rear which is always the lowest point, especially when climbing hills and from here the feed pipe is taken. This arrangement works perfectly and the engine runs uniformly even on hills, when the tank is nearly empty. The tank of model "E" holds 17 gal. and Model "H" 23 gal.



The Locomobile magneto complete.

MAGNETO IGNITION.

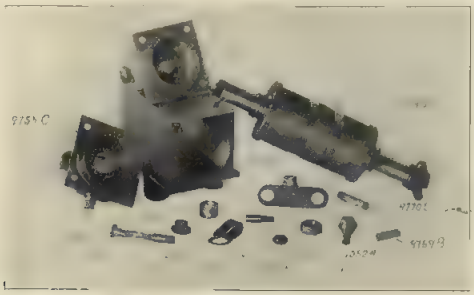
The current for the make and break ignition is supplied by a specially built low tension magneto, which has received great attention, a cut of which is herewith shown. This magneto, it is claimed, gives a very powerful current, and one used on Model "E" for 3000 miles has given absolutely no trouble. The armature bearings are bronze. A ring is used at each bearing to prevent oil from getting on the armature. Also holes are drilled which allow the surplus oil to flow out without interfering with the armature. The magnets used are permanent. The covers

which support the bronze bearings are of aluminum. All screws used in the construction, which are put in permanently are sweated in to prevent loosening.

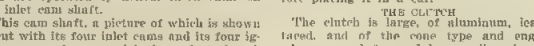
A kiss spark is made by severing the contact of two cylindrical shaped pieces, the axes of which are at right angles. The contact pieces are covered with a special Iridium alloy which has been found to give a good spark and wear well. The ignitor plates are made in the form of a taper plug which fits into the side of the cylinder near the head. The hammer has a cone fit into the cylinder, and passes through a shellac covered lava bushing, which makes a gas-tight insulated joint. The shellac becomes hard and forms a good insulating material, and keeps the bushing from moving. Tappet rods, adjustable in length, operate the hammers, this adjustment is made by screwing them into a case at the bottom and locking by a check-nut. A small spring at the top for flexibility holds the rod and hammer together, obviating any micrometer adjustment and another much heavier one at the bottom which is encased, operates to give the sudden separation of the sparking parts. The tappet rods are operated by helical faced cams on the inlet cam shaft.

This cam shaft, a picture of which is shown is cut with its four inlet cams and its four ignition cams from a solid piece of stock. A special patented machine has been devised for duplicating these shafts which use a master cam shaft in a manner similar to the use of a master cam in a profiling machine Each cam shaft comes out of this machine after the finishing, grinding, an exact duplicate of the one before it. The use of the cam shaft for the ignition cams saves much complication, and by the use of helical or twisted cams which are clearly shown in the photograph, it is possible to advance or retard the time of the spark, by simply pushing forward or pulling backward this cam shaft. The inlet cams are made wide enough so this can be done. The necessary motion of this shaft required for advancing or retarding the spark is about ⅝ ins. The large 2 to 1 gear at the end of the cam shaft is fastened to a sleeve which has a square hole in it, and slides on the squared end of the cam shaft to allow of this motion. Current is supplied to the cylinders by a bus-bar running along the top. This is fitted with a knife switch at each cylinder so that any one can instantly be cut out. The wiring is extremely simple and is low tension. The key note of the whole arrangement is simplicity. The spark obtained is a veritable torch and the builders seem well satisfied with the results shown.

On a testing stand is arranged a duplicate of the ignition apparatus of one cylinder of the engine, but all open so that by inspection the character of the spark may be determined.



The Locomobile magneto parts 9735, plunger spri brush holder pins 9736, contact bar nut, 9733-B, cont 9713, insulation bushing (female) 9714, insulation b wick 9739-B, rivet spring 9736-1, armature compo (coupling end) 9738-B, bearing screws. Note the ng, 10795, grounding brush; 10793, brush spring, 10794, e 4 bar 9704 plunger 9393, ¼-in. 20 hexagon brass nut, ushing (male) 10824-B, bearing collar, 9736-C, oller (or 9738-C), bearing (contact end); 9736-C, bearing - hands are now used on bar 4 instead of two.



1906 Locomobile—Inlet cam-shaft, showing the helical ignition cams. This shaft and cams are all cut from one piece of stock

Every magneto is tried out on this stand before placing it in a car.

THE CLUTCH

The clutch is large, of aluminum, leather faced, and of the cone type and engages when pressed forward by a coil spring and disengages by a foot pedal. The leather face is riveted in place and is provided with suitable holes for supplying oil to keep the leather in condition. The forked arm on yoke and collar for disengaging the clutch are in the forward part of the transmission case, and therefore run in oil and are protected.

brake. The other side lever is for the gear shifting and the remaining push pedal acts on the clutch alone.

The steering gear is of the worm and sector irreversible type with eccentric bushings, which allow of taking up for wear. Practically no changes have been made in the steering gear over last year. The rod running to the steering knuckle of the right front wheel is fitted with a ball and spring pressed socket blocks on each side of the ball, which absorb road shocks, protecting the teeth on the steering gear from fracture. These socket joints are covered by leather pouches filled with grease which makes them dust proof and insure lubrication.

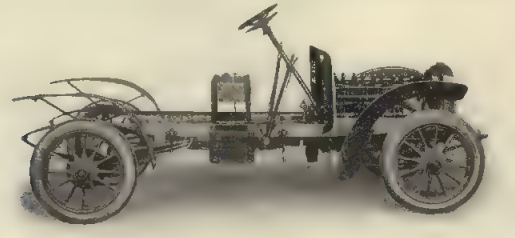
The Rambler 1906 Model 14, 4-Cylinder Touring Car

HUGH DOLNAR.

Thomas B. Jeffery & Company, makers of the Rambler Automobiles, Kenosha, Wisconsin, U. S. A., made and sold more cars in the season of 1905 than expected, and largely increase their plant, which now has over 14 acres of floor, equipped with the most advanced machine tools and automobile production facilities, and is now beginning the construction of a new series of workshops inside of its half mile testing track, by the erection of a new building 150x257 feet.

Branches of Thos. B. Jeffery & Company are now established in Boston, Philadelphia, Chicago, Milwaukee and San Francisco, every branch having a show room and a warehouse stocked with complete lines of parts, repairs and accessories the branch houses serving every purpose of distribution as fully as the main establishment at Kenosha.

The Rambler 1906 Model 14 touring car, 106 ins. wheel base, 56½ ins. gauge, wheels, 32 ins.; tires, 4 ins. Motor 4 cyl. 4x4½ ins., vertical, water cooled, 4-cycle, sliding gear transmission, 3 forward speeds and reverse, shaft drive to rear axle, weight about 2000 lbs. Price, including fire lamps, two gasoline search lights and generator, 3 oil lamps and generator for tail lamp, horn and a full tool equipment, ready for operation, $4750 F. O. B. Kenosha, Wis.



Rambler Model 14 chassis, right side elevation. The gasoline tank, carrying 15 gallons, is under the driver's seat, accessible by removing cushion. There is no separate water tank, all the water, about 8 gallons, being contained in the radiation system. The water system has been carefully designed against leakage.

The Jeffery Company is bringing out two new 4-cylinder cars for next season, the first of which is here described.

FANCY IMPORTED GERMAN NOVELTIES.

X620-7½ X621-7½ X622-7½ X631-22½ X600-8 X605-22½

X620-7½ Small size children's purse, made of genuine leathers, morocco, calf, levant, etc.; square frame, nickel plated, leather lined. Size, 1⅝x1⅝ in. Put up 1 dozen assorted in compartment box.
Per doz., $0.75

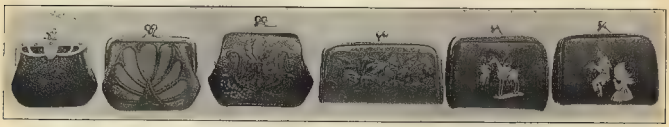
X621-7½ Assorted leathers and colors, embossed with handsome floral design hand painted in colors; 2 ball nickel frame; leather lined. 1 dozen assorted in compartment box. Size, 1⅜x1⅝ in.
Per doz., $0.75

X622-7½ All real leathers, assorted seal, morocco, walrus, etc.; full leather lined with 2 ball nickel frame; welted seam. Size, 1⅞x2¼ in. Put up 1 doz in flat compartment boxes.
Per doz., $0.75

X631-22½ Long narrow shaped in real leathers, assorted; leather lined; leather ends; 2 ball nickel plated frame; full length inside pocket, also leather lined; fancy decorated with beautiful floral design, hand painted. Size, 1½x 3½ in. Put up ½ dozen assorted leathers and decorations to box.
Per doz., $2.25

X600-8 Small size purse with fancy frame as design; made of all real leathers, levant, seal, morocco, etc.; leather lined; welted seam. Size, 1⅜x1⅝ in. Put up 1 dozen to box; full assortment colors and leathers.
Per doz., $0.80

X605-22½ Highly lithographed in fancy colors assorted home scenes; made of genuine calf skin, outside seam, 2-balled nickeled frame, full leather lined. Size, 2¼x2¼ in. Assorted ½ dozen in box.
Per doz., $2.25



X625-9 X626-9 X601-12½ X603-20 X604-20 602-20

X625-9 Assorted real leathers, morocco, seal, calf, etc.; welted seam at bottom; fancy jewel frame, riveted and full nickel plated; leather lined. Size of bag, 1⅞x2 in. Put up 1 dozen in flat compartment boxes.
Per doz., $0.90

X626-9 Regular shaped purse, all leather; full leather lined; assorted colors; square nickel 2-ball frame; fancy embossed scroll design on front; blocked bottom. Put up 1 dozen assorted colors to box. Size, 2x2¼ in.
Per doz., $0.90

X601-12½ Same shape and size as No. X626-9; embossed in neat floral design; assorted leathers and colors. Put up 1 dozen in flat compartment boxes.
Per doz., $1.25

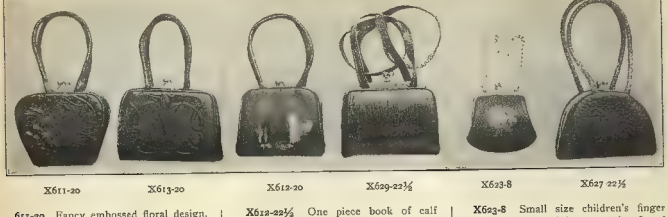
X603-20 Long shaped purse, made of kid leather; leather lined, leather ends; 2 ball frame with inside pocket; embossed on front and illuminated to represent Mexican hand carved work. Size, 1½x3 in. Put up ½ dozen to box.
Per doz., $2.00

X604-20 Square shaped purse made of kid leather; leather lined, leather ends; 2-ball nickel plated frame; fancy designs of "Children's Pastimes," finished in colors. Size, 2¼x2½ in. Put up ½ dozen assorted to box.
Per doz., $2.00

602-20 One piece genuine calf skin leather; leather lined, leather ends Assorted high colored pictures representing boyhood scenes. Size, 1⅞x2⅜ in. ½ dozen assorted in box.
Per doz., $2.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

FANCY IMPORTED GERMAN NOVELTIES—Continued.



X611-20 X613-20 X612-20 X629-22½ X623-8 X627 22½

611-20 Fancy embossed floral design, all leather; 2-ball fancy frame; 2 tubular shape leather handles. Size, 2x2½ in. ½ dozen assorted to box.
Per box, $2.00

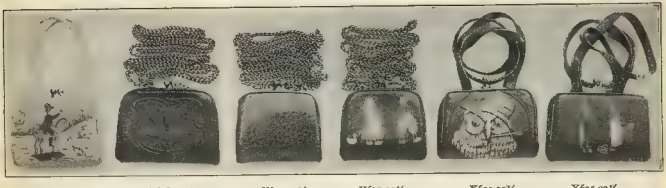
613-20 Fancy scroll designs in imitation Mexican hand carvings; fancy 2-ball frame; all leather, leather lined ends; two round leather handles. Size, 2x2⅜ in. ½ dozen assorted colors to box.
Per doz., $2.00

X612-22½ One piece book of calf finished sheep skin; thoroughly stiffened to retain shape; leather lined, leather ends; two leather cord handles. Assorted "Peasant Scenes." Put up ½ dozen to box. Size, 2x2 in. **Per doz., $2.00**

X629-22½ Soft crushed bag in assorted colors; made of one-piece leather throughout; leather lined, leather ends; 2-ball nickel riveted frame; two stitched leather strap handles Size, 2½x2½ in. Put up ½ dozen to box, assorted colors
Per doz., $2.25

X623-8 Small size children's finger purse; 2-ball nickel frame, made of real leathers, assorted colors; leather lined; 3 in. chain; embossed and finished in colors, assorted fancy floral designs; welted seam. Size, 1¾x1½ in.
Per doz., $0.80

X627-22½ Imitation leather bag; strongly made, strongly lined; 2-ball nickel frame, two cord handles. Size of bag at top, 1 in.; at bottom, 2½ in.; depth of bag, 1¾ in. Put up 1 dozen to box, assorted shapes
Per doz , $2.25



X617-22½ X606-22½ X633-22½ X607-22½ X632-22½ X635-22½

X617-22½ Fancy children's or misses' hand bag, made of white kid leather, white kid lined, leather ends; extra strong 2-ball nickel plated frame; illuminated in bright colors, depicting "Children's Pastimes." Size, 1¾x2¼ in.
Per doz., $2.25

X606-22½ Children's purse, made of soft kid leather; leather ends, leather lined; 2-ball nickel frame; has long neck chain, 19 in. long; embossed with fancy floral design. Size, 2½x2 in. Put up ½ dozen to box. **Per doz., $2.25**

X633-22½ Same as No. X606-22½, but made of levant leather; otherwise the same as to size and chain; put up the same way. **Per doz., $2.25**

X607-22½ Children's purse, made of kid; one-piece book; leather lined, leather ends; 2-ball nickel plated frame with long neck chain; decorated in colors illustrating Dutch scenes. Size, 2¼x2½ in. Put up ½ dozen assorted designs to box. **Per doz., $2.25**

X632-22½ Fancy purse made of kid leather, one-piece; leather lined, leather ends; 2-ball nickel plated frame; two 4½ in. stitched leather handles; assorted decorations, embossed and illuminated in colors. Size of purse, 2x2½ in. Put up ½ dozen to box **Per doz., $2.25**

X635-22½ Same as above number in style, size and finish, decorated in colors of "German Peasant Scenes." Put up ½ dozen assorted designs to box.
Per doz., $2.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

FANCY IMPORTED GERMAN NOVELTIES—Continued.

X638 22½ X634-22½ X616-22½ X615-22½ X636-42½ X637-45

X638-22½ Children's real leather hand bag, made of soft stock in fancy colors, leather lined and leather ends; full riveted 2-ball frame; two sewed strap handles, 5 in. long. Put up ½ dozen to box. Size, 2x2⅝ in. **Per doz., $2.25**

X634-22½ Made of assorted real leathers, one-piece bag; bellows bottom; 2-ball nickel riveted frame; one leather cord handle, riveted. Put up ½ dozen assorted colors to box. Size, 1⅞x2¾ in. **Per doz., $2.25**

X616-22½ Children's or misses' hand bag, made of leather throughout; leather lined and leather ends; bellows bottom, 2 ball nickel riveted frame with leather riveted cord handle; embossed in natural colors in fancy floral design. Put up ½ dozen to box. Size, 2½x2½ in. **Per doz., $2.25**

X615-22½ Same as No. X616-22½; illuminated in colors; same size and style as above number. **Per doz., $2.25**

X636-42½ Large size imported purse, sateen lined, leather ends; full stitched around outside, 2-ball nickel frame; bellows bottom; double strap handle in "Lovers' Knot" shape; illuminated in fancy colors in "Nursery Games." Put up ½ dozen to box. Size, 3x3¼ in. **Per doz., $4.25**

X637-45 Genuine calf skin bag; leather ends; moire silk lined with extra pocket in lining; two leather cord handles. Put up ¼ dozen assorted colors to box. Size, 2½x3½ in. **Per doz., $4.50**

X624-8 X608-22½ X609-22½ X610-22½ X630-22½ X614-22½

X624-8 Children's finger purse in real leather; leather lined; strong nickel two-ball frame; 3 in. chain. Put up 1 dozen to box. Size, 1⅞x2⅜ in. **Per doz., $0.80**

X608-22½ Full leather bag; one-piece leather; leather lined, full leather ends; strongly sewed throughout; two cord leather handles, strongly sewed; illuminated in colors in fancy "Easter" designs. Put up ½ dozen to box. Size, 2x2¼ in. **Per doz., $2.25**

X609-22½ Same as above number; different design as per illustration. **Per doz., $2.25**

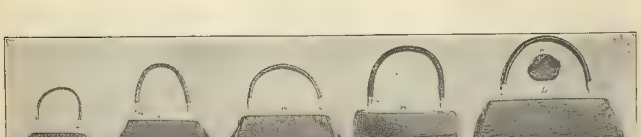
X610-22½ Soft kid leather in odd shape. Size at top, 2½ in.; size at bottom, 1⅝ in.; depth, 2 in. Two leather cord handles; embossed with Indian heads with feather head gear in full colors. Put up ½ dozen to box. **Per doz., $2.25**

X630-22½ Same as No. X610-22½, except for design, which is illuminated in colors in fancy scroll design. Same size and packed same way as No. X610. **Per doz., $2.25**

X614-22½ Tan kid leather, leather lined, leather ends; made throughout of one-piece leather; cord handles; imitation Mexican hand carved design on front, finished in silver grey. Size at top, 2¼ in.; at bottom, 1½ in.; depth, 2 in. Put up ½ dozen to box. **Per doz., $2.25**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

LADIES' HAND BAGS.



594-15 596-22½ 604 22½ 602-22½ 610-42½

594-15 Child's wrist bag, made of imitation leather; fancy frame, full bellows bottom, Vienna handle Colors, black and brown Size, 3x4½ in.
Per doz., $1.50

596-22½ Triple frame bag; two pockets made of imitation leather; black and brown, strong posts and handles. Size, 4x7 in.
Per doz., $2.25

604-22½ Imitation Basil. alligator full bellows bottom, sateen lined; two-ball frame; single pocket; stitched leather handle with strong metal posts on frame Colors, green, blue and brown Size, 4x7¾ in.
Per doz., $2.25

602-22½ Made of seal grain leather; Avenue bag; one flap and one imitation flap and embossed button. Colors, black and brown; solid stitched handle. Size, 4x6½ in.
Per doz., $2.25

610-42½ Made of strong imitation leather; extra large size bag; strong posts, with heavy stitched handle; black only; fitted with purse. Size of bag, 5½x9½ in.
Per doz., $4.25

614-45 620-60 688-45 608-42½

614-45 Made of Basil alligator in square shape; one regular pocket; two-ball frame, two extra flaps on outside fastening with glove fastener, handle of same material as bag, with handle caps. Color, brown. Size, 4¾x8½ in
Per doz., $4.50

620-60 Made of walrus grain leather; one regular, one coin and one glove or handkerchief pocket with flap and glove fastener; one embossed pocket with em bossed button; full leather handle. Size, 4½x8½ in.
Per doz., $6.00

688-45 Flat shaped bag; two-ball gilt frame; two regular and one coin pocket; full leather Vienna handle with flap over frame. Colors, black and brown. Size, 4¼x7¾ in.
Per doz., $4.50

608-42½ Regular shaped wrist bag, triple frame; two pockets; extra quality sateen lining. Colors, black and brown Size, 5x10 in
Per doz., $4.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

LADIES' HAND BAGS—Continued.

630-60 628-60 692-60 624-75

630-60 Gram leather bag, leather covered riveted frame; brass lock and catch, gilt handle caps; full stitched leather handle, sateen lined; fitted with purse; special value. Size, 4¾x8¾ in.
Per doz., $6.00

628-60 Made of walrus leather; full leather covered riveted frame with fancy push catch and gilt metal handle caps, moire lined; fitted with purse, powder puff, card case and smelling salts bottle in fancy cut glass design Size, 4¼x7¼ in. **Per doz., $6.00**

692-60 Fancy shaped bag made of soft leather; full gilt frame; two regular and one coin pocket with flap and push button, leather Vienna handle. Colors, black and brown. Size, 5x8 in.
Per doz., $6.00

624-75 Regular shape bag in walrus grain leather, heavy metal frame with strong lift catch; metal caps on full stitched leather handle; sateen lined; fitted with purse to match; genuine leather. Size, 5x9 in. **Per doz., $7.50**

546-90 534-90 548-90 708-120

546-90 Special design one-piece bag, made of walrus leather; full stitched leather handle; gilt frame with two regular pockets with flap and one card pocket with flap; both flaps fastened with glove fasteners on front; moire lined. Colors, black and brown Size, 4x7 in.
Per doz., $9.00

534-90 Made of walrus grain leather; 1 coin pocket, 2 regular pockets and 2 handkershief pockets with flap; full moire lined; block bottom. Colors, black, brown and blue; Vienna handle. Size, 5x8½ in **Per doz., $9.00**

548-90 Basil alligator bag with large knob; full gilt frame riveted; solid posts; metal handle caps, fitted with card case, size 2½x4 in., and purse, size 2½x2½ in. Colors, green tan and blue; a very beautiful bag in style. **Per doz., $9.00**

708-120 Square shape bag; made of walrus leather; full stitched Vienna handle; gilt lock, posts and handle caps; full leather covered riveted frame; moire lined; fitted with purse. Size, 4x9 in.
Per doz., $12.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

LADIES' HAND BAGS—Continued.

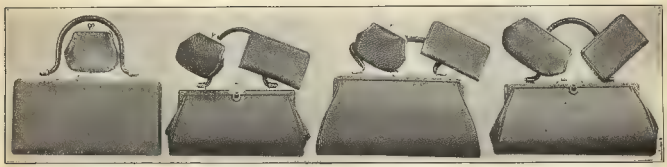
654-120 564-135 566-150 638-150

654-120 Fancy shape bag; made of walrus leather, gilt finished frame; fancy handle caps, full stitched Vienna handle; handkerchief and card pocket on front; moire lined; fitted with purse. Size, 5x9 in. Colors, black and brown
Per doz., $12.00

564-135 Two handle flat-iron bag, made of walrus grain leather; full gilt frame; leather lined; fitted with purse; two flat sewed handles; strap over top, blocked bottom. Colors, black, brown and tan. Size, 5x9 in. **Per doz., $13.50**

566-150 Walrus leather bag, full leather covered riveted frame; lift catch and handle caps; full leather Vienna handle; full leather lined card case, size, 2¼x4 in., and purse, size 2½x4 in., to match bag. Colors, black and brown. Size, 4½x10 in. **Per doz., $15.00**

638-150 Flat bag, made of seal grain leather; full gilt frame, full leather Vienna handle, leather lined; 1 coin pocket and 2 moire lined card pockets with flap and glove fastener, holding card pockets in place. Colors, blue, black and brown. Size, 5x8½ in. **Per doz., $15.00**



572-180 568-180 450-240 578-270

572-180 Flat shaped bag, made of genuine morocco leather, 1 coin pocket fitted with purse and 2 regular pockets on side; full leather Vienna handle; fancy gilt frame with lift catch; gilt trimmings throughout. Colors, blue, green, heliotrope and brown. Size, 4¾x9 in.
Per doz., $18.00

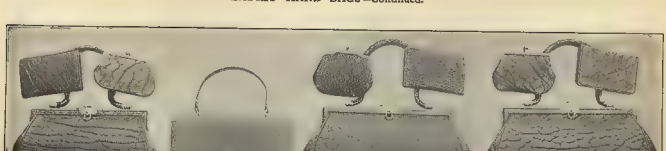
568-180 Seal grain leather bag; full leather covered riveted frame; gilt slide catch and trimmings; full leather lined, fitted with purse and card case; full leather Vienna handle; black only. Size, 4x8½ in. **Per doz., $18.00**

450-240 Made of real seal leather; full riveted leather covered frame; gilt lift lock and gilt handle caps; silk moire in fancy design lining; fitted with real seal purse and card case; black only. Size, 5x9½ in. **Per doz., $24.00**

578-270 Full shaped genuine morocco bag with fancy gilt frame; gilt posts and handle caps; full leather lined; fitted with purse and card case, large size, made of same material as outside of bag. Colors, black, brown and blue. Size, 4½x9½ in.
Per doz., $27.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

LADIES' HAND BAGS—Continued.



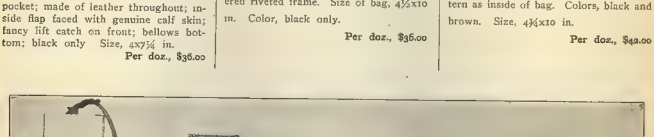
582-360 670-360 590-360 584 420

582-360 Small shaped genuine walrus bag; gilt trimmings; full leather covered riveted frame; square shaped frame; silk lined in beautiful Dresden pattern, purse compartment stitched with elastic; card case to match. Colors, black and brown. Size, 4x8¾ in.
Per doz., $36.00

670-360 Genuine seal bag, in combination style; full stitched leather handle; 2 regular, 1 coin and 1 chamois lined pocket; made of leather throughout; inside flap faced with genuine calf skin; fancy lift catch on front; bellows bottom; black only Size, 4x7¼ in.
Per doz., $36.00

590-360 Made of selected genuine seal skin throughout; genuine seal Vienna handle; gun metal posts and fancy push lock; satin lined; fitted with genuine seal card case, calf faced, size 2½x4 in., fancy shaped purse, genuine seal, size 2½x2¾ in.; silk lined; genuine seal covered riveted frame. Size of bag, 4½x10 in. Color, black only.
Per doz., $36.00

584-420 Large size genuine walrus bag; full Vienna handle of same material; gilt trimmings; heavy leather covered riveted frame; Dresden silk lined, fitted with purse, size 2½x3½ in., and card case, size 2¾x4 in., card case of genuine calf skin; purse silk lined in same pattern as inside of bag. Colors, black and brown. Size, 4¾x10 in.
Per doz., $42.00



588-450 742-90 746-90 2206-90 744-90

588-450 Special value, genuine seal flat book; 1 coin pocket, 2 card pockets and 1 pocket on front for handkerchief, kept in place by two push locks, moire lined; fitted with mirror with genuine seal back; bellows bottom; "Lovers' Knot handle; black only. Size, 4¼x7 in.
Per doz., $45.00

742-90 Long avenue shaped bag; strong strap handle at back, flap and glove fastener; moire silk lined throughout; extra pocket stitched in lining; fancy small sized purse, with flap and glove fastener. Size of purse, 2x3 in. Colors, black and brown. Size of book, 4x8 in.
Per doz., $9.00

746-90 Long shaped avenue bag; full length strap handle at back; 2 regular and 1 leather lined coin pocket; fancy gilt frame; flap over all with leather covered glove button. Colors, black, brown and tan. Size, 3½x6¾ in.
Per doz., $9.00

2206-90 Combination pocket book with a long strap handle at back, made of morocco grain leather; 2 regular, 1 leather lined coin with gilt frame, and 1 card or ticket pocket, both flaps held in place by gilt glove fasteners. Colors, black and brown Size, 2½x5½ in.
Per doz., $9.00

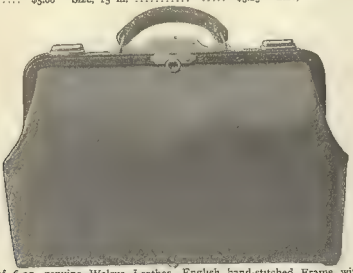
744-90 Same as No. 746-90 in every particular, but made of genuine morocco leather in black, brown and blue; gilt button on flap. Size, 3½x6¾ in.
Per doz., $9.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Special Values in Ladies' and Gentlemen's Satchels.

GENUINE WALRUS

50 Ladies' High Cut Oxford Bag Made of genuine Walrus 6-oz. stock leather. Imported Frame with Gold Push Lock and Slide Catches. Round Swing Leather Handle, seven bottom studs. Full leather lined with Leather Pocket. Color, Black.
Size, 14 in. ..... $5.00 Size, 15 in. ..... $5.25 Size, 16 in. $5.50



58 Gents' Bag. Made of 6 oz. genuine Walrus Leather. English hand-stitched Frame with heavy German Handle. Gold finished Slide Lock and Catches. Light colored Leather Lining. Two Individual Pockets and one full length Pocket, held in place with strap and glove fastener. Six large Bottom Studs. Color, Black.
Size, 16 in. ..... $6.50 Size, 17 in. ..... $7.00 Size, 18 in. $7.50

59 Gents' Oxford Bag. Made of genuine 6-oz. Walrus Leather. Flush Leather Covered Frame. Gold finished trimmings. Heavy Leather German Handle. Full Leather Lined. Eight Bottom Studs. Two Individual and one full length Pocket with Strap Fastener. Color, Black only.
Size, 16 in. ..... $7.50 Size, 17 in. ..... $8.00 Size, 18 in. $8.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

The Simplex 1906 Two-Cycle 40 H. P. Touring Car

HUGH DOLNAR.

The Simplex Automobile Company, of Mishawaka, Indiana, U. S. A., capital stock $100,000.00, was organized in 1904, to construct motor cars after the design of E. J. Gulick, and in July, 1905, the first American Simplex car was on the road. This car has now been driven about 2,500 miles, is satisfactory to its owners, and will be offered to purchasers during the season of 1906.

The Simplex Touring Car motor, a pair of vertical two-cycle, water-cooled cylinders, is here first illustrated and described

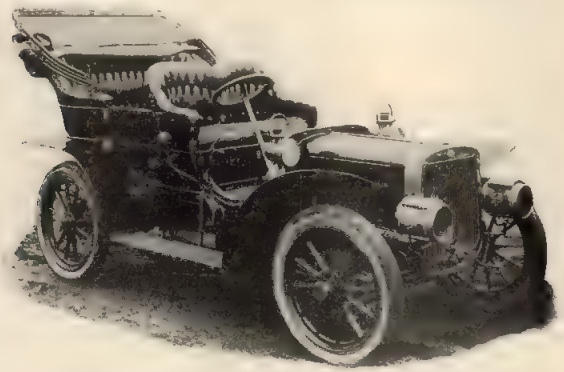
E. J. Gulick, designer of this car, which embodies many new ideas, all of which will be protected by patents so far as possible, was born near Syracuse, N. Y., in 1865, and began as an apprentice in a general machine shop in 1884, and during his early days in the shop was a pupil of Prof. Leonhard, who was in his day one of the foremost practical and theoretical mechanics of this country. Gas engines were part of the output of Mr. Gulick's first shop, and he became familiar with those constructions of that class and day before his apprenticeship of three years was ended.

Mr. Gulick began on automobiles by taking charge of the Packard shops in Warren, Ohio, in 1900, resigning in 1902 to become factory manager of the Alamo Manufacturing Co., gas and gasoline engines, Hillsdale, Mich., and left this company in 1903 to take up the automobile exclusively and independently. Mr. Gulick spent the next year on the drawing board and in making experiments with two-cycle gas engine details, and, having matured his plans fully, formed the Simplex Company as stated, in 1904.

The following are the specifications of the 1906 American Simplex 2-cycle Touring Car: Wheel base, 106 ins.; gauge, 56 ins.; wheels, 34 ins; tires, 4 ins.; motor, 2-cylinder vertical, 5½x5 ins., 2-cycle water-cooled, 40 B. H. P.; sliding gear, 3 forward speeds and reverse; seats for five passengers; weight 2450 lbs.; price $2500, including five lamps and a full tool-equipment; ready for extended touring.

NOTABLE FEATURES.

The end of 1905 sees the 4-cycle motor still so generally used as to make the 2-cycle



The 1906 American Simplex 2-cycle touring car, wheel base 106 ins., gauge 56 ins., wheels 34 ins., tires 4 ins., motor 2 cylinder vertical 5½x5 ins., 2-cycle, water-cooled, 40 H. P., sliding gear, 3 forward speeds and a reverse, seats for five passengers, weight 2450 lbs., price $2500.00, including five lamps, and a full tool-equipment, ready for extended touring.

motor driving of this new car its most prominent feature. The cylinders are supplied by crank-box pressure, crank-box clearance reduced to about 1-32 on a side of moving members by filling the pistons with aluminum shells, and fitting the cranks with aluminum castings to complete the arm disks. The indicated crank-box pressure is 7 to 8 lbs. maximum. The exhaust ports are 1⅛ ins. long lengthwise of the cylinder, and the intake ports are ⅝ long; bridges are introduced dividing each port into two openings, and these bridges are 1½ ins. wide on the exhaust side, cored to take water up to the cylinder wall. The intake area is about 3⅜ sq. ins. The exhaust port area is about 5 sq ins. This motor, two cylinders, shows over 40 brake H. P. at 900 r. p. m. with muffler in place. The twin muffler is two shells, 6½ ins. diameter, 24 ins. long; the steel cen-

tral tubes are about 3½ ins. diameter, pierced with ½ in. diameter holes opening to the cavities formed by opposing cupped steel disks to fill the length of the central tube. This well known form of muffler is silent and gives very little back pressure, if made of sufficient capacity. The exhaust enters the twin muffler shells equally, and the mufflers reduce the brake H. P. of the motor only about 5 per cent. There is no valve placed between the carburetor throttle and the crank-box, and the high power shown by this pair of 5½x5 ins., 2-cycle cylinders is due wholly to good workmanship and small crank-box clearance.

The second notable feature of the Simplex is the placing of a full length sub-frame, rigid with the rear axle, and reaching to the front axle, where it is supported in a globe bearing on the front cross-spring. This globe bearing forms the inner end of a sleeve which makes the starting crank bearing, and also forms the central support for the three-point suspension chassis frame, carried on two half elliptic springs at the rear.

A third notable feature is the direct driving line to the bevel pinion, without universal joints, this desirable construction being made possible by the full length sub-frame, which of course carries the whole propulsion system.

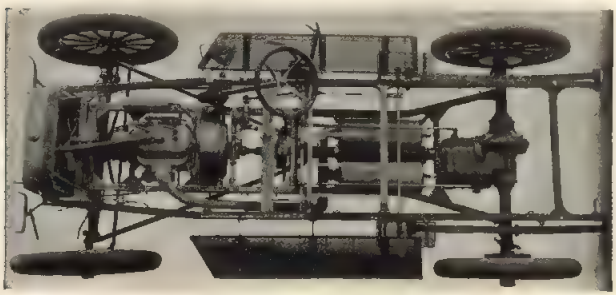
The illustration shows the car body position unchanged by 13 ins. variation of front wheel level; with one rear wheel raised 13 ins., as shown, the cranking was as free as with all four wheels on the level, showing that a road level variation of 13 ins. produced no displacement of moving parts of the propulsion system of this new American Simplex.

The fourth notable feature of great importance is shown in the rear axle sleeve and casting construction. The gear-box is divided horizontally, and flanged sleeves of unequal length are bolted to the gear-box ends to complete the rear axle assemblage casing. The full opening of the gear-box, by removing the cover, permits complete driving gear inspection, handling, disassembling and removal.

The change gear is all on very large Hess-Bright bearings, including the reverse pinion, and is an example worthy of close study. The whole rear axle and driving gear casing is of Parsons bronze, giving lightness with the certainty of strength and durability.

The driving wheels are applied directly to the divided axle ends, on tapers, fixed with keys, nut retained; with the exception of these rear wheel keys there is not a driven key nor pin, nor a set-screw in this car. In all cases where turning is not resisted by square shafts, fixed feathers are used, the engaging members having split hubs and pinching screws partly in the shaft to maintain endwise location. All bolts in rough work have castellated nuts and split pins. Where the surfaces are finished the nuts are close fits, with no other retention than thread friction.

All levers and brackets are of Parsons bronze, steel drop forgings used for minor parts only, save in case of the front wheel stub-axles, which are of the usual steel forgings with Timken roller bearings.



American Simplex, chassis plan. This illustration shows the general arrangement of the sub-frame, riveted to the rear axle and supported in front on the cross-spring over the front axle, and the chassis frame carried on the rear axle frame and on a globe-joint in the middle of the front member of the sub-frame. Rise or fall of either front wheel does not affect the level of the chassis frame cross-wise. The chassis frame, of course, partakes of rear wheel rise or fall, but the chassis frame is not severely twisted by rear wheel change of level, because the front globe-joint gives a full three-point suspension. The entire propulsion system is carried on the sub-frame, making it possible to do away with universal joints in the propeller shaft altogether. The single large exhaust pipe leads to twin mufflers merely to give more muffler cubic content. The change gear is carried in a Parsons bronze casing integral with the bevel gear casing. From a kinetic standpoint, the change gear should be placed as close as possible to the rear axle, and this location is also demanded for easy construction and substantial support. The only argument against the arrangement here shown is that more weight is placed on the rear axle without spring support other than that given by the pneumatic tires of the driving wheels, which are overworked, and should therefore be loaded as lightly as possible. In point of fact, after nearly 3000 miles of driving mainly on dirt roads, the Simplex rear tires show very little wear indeed, and are the same to all appearances as the front tires, none of the tires being visibly worn. From the constructor's point of view, the Simplex rear axle and change gear casing must be regarded as ideal, it is best for work, and best to build, and most likely to keep the parts where they belong

The front axle has two long braces put through it, which unite in a fork having a globe at the rear. This globe is journaled to revolve freely as far as is required to accommodate the front wheel lift, and as these diagonal braces are abundantly strong to prevent any turning of the front axle by road obstacle influence on the front wheels, the single front spring, placed crosswise, has no turning impulse to resist, and at once becomes a wholly satisfactory agent.

The selection of materials is notable in a leaning towards the use of bronze in place of drop forgings and steel castings, and in the rejection of aluminum, which is employed only for the pump and commutator column and its cap. The crank-shaft journals are capped independently of the oil pit or basin, and even this basin, which serves simply to carry oil and is subject to no working stresses, is in this substantial car made of grey iron, instead of being an aluminum casting, as is usual.

THE SUB-FRAME.

This is a tapering structure of channel pressed steel, greatest depth in front, where the sides are 5½ ins. deep, 21 ins. wide at the front end, which is directly over the front axle, and widening evenly in plan to about 34 ins. in width, where the sides are riveted to lugs cast on the bronze rear-axle sleeves. The sub-frame cross-girts are gusseted and riveted, and have top flanges which support the motor. The front cross member of the sub-frame is supported by the front cross-spring, globe perched, so as to have free universal movement.

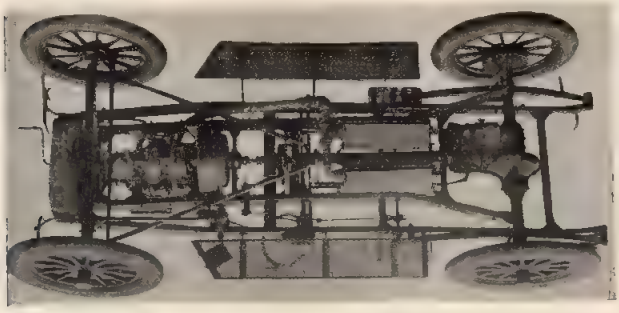
The entire propulsion system is carried on the sub-frame, which is rigidly connected to the rear axle and its integral speed change casing, so that no universal joints need be fitted in the propeller shaft. This makes the propeller shaft assemblage very light, as is needful for silent gear shifting. The radiator and body are all that is carried on the chassis frame. The fan is carried on a high pedestal rising from the front cross-member of the sub-frame. The radiator water connections are rubber hose, uninjured by the slight movements between the sub-frame and chassis frame.

THE MOTOR.

It is of course impossible to describe the motor in detail without sectional drawings, and these are now in course of preparation. The exterior illustrations will, however, enable the reader to understand the general description which follows.

The cylinders are grey iron, cast in a dual unit, having a common water-jacket, stayed to the cylinders by short radial ribs, which leave free water ways top and bottom of the jackets. The water circulation is natural, bottom of radiator to pump, top of pump to bottom of jacket, and top of jacket to top of radiator. The thermal circulation alone is effective without the pump. The pump is a four-winged spiral, vertical, 3 ins. diameter, 1½ ins. pitch, in a vertical column in front of the cylinders, and is bevel-gear driven, even turns with the crank-shaft, the pump shaft being carried upward through a stuffing box in the top head of the pump shell to take the distributor, governor and timer.

Pistons are of grey iron, 8¾ ins. long, flat heads with deflecting cavities in the edges and cooling ribs inside. Four snap-rings are used, ⅜ ins. wide, eccentric, 45 degree lap, 2 rings close to the top, one just above the piston pin and one near the bottom. The pistons are cored out inside to give the least possible clearance. The connecting rods are Parsons bronze H section, full marine type, with white bronze split-bushings on the



American Simplex, bottom of chassis. The ends of the triangular front axle bracing go through the axle forks forward, and end in a globe joint in the rear, at about the middle of the chassis. The exhaust pipe is 3 ins. dia. This picture shows both front and rear axle construction, and gives a clear idea of the very substantial front axle triangular bracing, which has a globe-joint at about the middle of the chassis frame. This front axle brace pushes the front wheels over the road and turns freely to permit a very large lift or drop of either front wheel without twisting either the motor frame or the chassis frame, takes all fore and aft work off the cross-spring over the front axle.

crank-wrist, screwed up hard on liners. The piston pins are 1⅝ ins. diameter, hollow, hardened and ground, turning in the pistons and fixed in the rod ends, and are splash lubricated through an oil basin and oil hole.

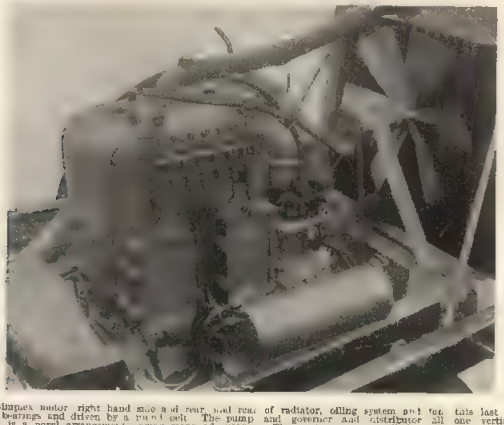
IGNITION.

The low tension current is taken to the ignition chamber, which is in line with the water pump and capped. The upwardly prolonged pump shaft carries the governor and high tension distributor. The primary current may be supplied by magneto, dynamo or dry-cells. The gyroscope governor furnishes the sole spark time control, no hand spark advance being fitted. The throttle is governed by the horizontal regulating pedal on the foot-board, leaving the steering post to carry nothing but the hand wheel and worm shaft. The pump column integral with the ignition-housing containing the governor and distributor, makes a very neat combination, the pump shaft being simply extended to form the governor and distributor shaft, while the top of the pump column is enlarged in a semi-globular form and capped to house the governor and commutator. Two coils, one spare, and the throttle rocker are carried on the inside of the front board. In this first car the front-board is fixed to the body-sills, but it is expected to be fixed to the chassis frame separate from the body, which can then be removed without breaking any connection.

There is no water tank, the cooling system holding about five gallons of water, which never boils, and wastes slowly. The gasoline 16 gallon tank is under the front seat, left hand side.

THE CLUTCH.

This is a leather-faced, multiple-disk, normally spring-engaged construction, as follows: One grey iron disk is placed next to the fly-wheel, faced with leather, then a soft plate-steel disk, then a second leather-faced disk and a second steel-plate disk, then a third leather-faced disk and saw-plate disk, and finally a grey iron leather-faced disk, against which a ball bearing, which takes the spring-thrust, is placed. The working diameter of the disk is 11 ins. Leather and saw-plate-steel disks work together without oiling, and this seven-plate multiple-disk clutch is run dry with entire satisfaction. The engagement is soft and gradual, the holding power is great, and the release is clean and free, with no oil viscosity drag whatever, and the gear changes are made silently. The rear clutch-disk has a spring-thrust resisting ball bearing against it to take the front end of the clutch-spring; the rear end of the spring bears against a second ball bearing, adjusted by a split-nut, pinch-screw retained, threaded on the clutch-shaft. The clutch-casing is bolted to the rear fly-wheel face, the head being pierced to fit the rear-spring ball bearing, thus making the casing dust proof. There are thus three thin steel disks between five leather facings, the three very light steel disks squared on the clutch-shaft, and the grey-iron leather-faced disks being carried by the fly-wheel. A Hess-Bright ball bearing in the fly-wheel supports the front end of the clutch-shaft, which is enlarged and cut with three solid clutch-jaws engaging a similar clutch on the forward



Simplex motor right hand side and rear, and rear of radiator, oiling system and tug, this last on ball bearings and driven by a round belt. The pump shaft is a novel arrangement, giving many advantages. The motor is two cylinders vertical, 2-cycle, water-cooled, 2½ ins. bore by 2 ins. stroke, and shows an average of about 45 horse power on the brake in long tests. The motor starts promptly, almost always with the spark only, and behaves in every way exactly like a very good 4-cycle 4-cylinder engine. The absence of the cam shaft and valves is a very strong point in favor of this form of motor, which is of light weight for the power developed.

end of the propeller shaft, being exteriorly retained by the bore of an emergency brake-drum. This clutch is described in detail because it is ideal in as much as it carries the least possible weight on the clutch-shaft, and so has the least weight of mass to resist sliding-gear engagement, and because it requires no lubrication, shows absolutely no wear after nearly three thousand miles of hard work, and has the indispensable requisite of an absolutely free disengagement.

THE GEAR SHIFT.

The inside hand lever works in two planes in a quadrant having a slot more than three times the lever thickness in the middle, and of free lever-width at opposite sides at the slot ends. This lever has the usual H-slot action, though the construction is modified so as to make it easier than the H-slot to handle.

small weight of the clutch members carried on the propeller shaft, and the absence of universal joints and the large ball bearings in the change gear make it actually impossible to rub the gear-teeth ends against each other in engaging. No mishandling of the gear-shift is possible, and any gear change can be made at any time under any conditions with certainty, without rubbing the gear-teeth and without noise. This result mass-weight of revolving clutch-material carried far from the centre. In the Simplex the total weight of parts applied ro the 1⅜ ins. diameter solid propeller shaft is only about 3½ lbs., and this weight is mainly close to the shaft in the plate-disk square-eyed hubs. A subsequent issue of this periodical will contain drawings showing the actual Simplex

Simplex motor, exhaust side and front. The column in front of the cylinders casting has the governor in the upper part, under a removable cover, with the governor below, distributor below the governor, and screw-pump below all. The pump, distributor and governor are all carried on one upright shaft miter gear driven from the crank shaft. The carburetor is seen just under the exhaust pipe, and is not described, as it is being changed. This illustration shows the motor frame inside the chassis frame.

This speed change lever has six movements, two right and left, crosswise, and four forward and rear movements, two inside, and two outside, which are effective as follows: Of the inside movements, extreme forward engages the reverse gear, extreme rear gives low speed; the outside movements give intermediate speed at forward, and high speed at rear extreme positions, three forward speeds and a reverse. The gear change lever is latched in reversing only, the quadrant having only this one reverse notch; in all other gear-engagement positions the lever and linkage is self-retaining and upon making any gear-disengagement the change-lever returns to and is automatically retained in its neutral position, ready to instantly begin any of its four effective movements. It will be seen that the action of this important gear-shifting lever fully meets all requirements in every particular, and in connection with the construction in detail. These drawings are now in preparation.

BRAKES.

The Simplex has one pedal only, which when pushed forward first disengages the clutch by a cam, and then holding the clutch free by a cam-dwell, continued forward pedal movement applies the intermediate emergency-brake.

The outside brake lever stands idle at extreme rear, latched to a ratchet-quadrant, free to move forward without unlatching, and first disengaging the clutch, and then continued forward movement applies the rear hub ordinary brakes, automatically ratchet retained until released by the grip bell-crank.

There is no inter locking in the Simplex control, in the sense of restraining the movement of one control agent by the previous movement of another. The pedal and brake-lever both have double effects by continued

movements, but there is no true inter-locking.

THE CHASSIS FRAME.

This is a pressed steel channel section construction, steel castings riveted into the rear ends to take the rear springends. Total length, 140 ins. This frame has only the body and radiator to carry, and is of course made correspondingly light, and has given sufficient clearance to permit all relative movements without touching the sub-frame. The general width of the chassis frame is 34 ins., narrowed in front to radiator width. With a full length sub-frame supporting the entire propulsion assemblage, the chassis frame loses much of its importance and is easily made a stable structure.

The rear-springs, half elliptics, are placed outside the chassis frame, and are 48 ins. long, 1¾ ins. wide, perched 26½ ins. from front end, 21½ from rear end, and have seven leaves. The single cross-front spring is 43 ins. long, 2¼ ins. wide, 7 leaves, 6¼ ins. rise and fall. The front spring top support is a global part of a starting crank sleeve, which is supported on the sub-frame and projects forward through an opening in the radiator.

Simplex Rear Axle. This is wholly of Parsons bronze. The lower part of a middle portion supports the change gear as well as the bevel pinion, bevel gear and balance gear, and takes flanged Parsons bronze sleeves on each side to complete the axle casing. These lateral sleeves have integral spring perches and brake rocker brackets. The middle part of the axle casing is covered by a large bronze cap, easily removable to give access to all gearing, which may all be removed while the car stands on its wheels. By jacking up the axle sleeve the live axles can be taken out. This simple and most substantial construction has no small applied members, and no bracing is abundantly strong, fully protects the moving parts which it encloses, and is in every way a notable example of careful machine designing.

FRONT AXLE AND STEERING.

The front axle requires abundant resistance to turning under road resistance to front wheel advance. The Simplex axle places a triangular bracing, shoulder and nut retention near the axle ends, which reaches to about the middle of the chassis frame, where it terminates in a globe bearing, seated and capped in and to the under side of the sub-frame, making a perfect support for the front axle, and at the same time permitting a universal front axle movement of sufficient range. The axle has forged steel forks, with plain hardened steel bearings to take the load, forks pinned and brazed into a steel tube 2¼ ins. diameter. The front wheels are carried on Timken roller bearings.

Steering is by a 16 in. hand-wheel, quadruple thread-worm, steel, hardened and ground, and solid hard steel worm-gear sector, also ground, integral axle hardened and ground in eccentric Parsons bronze bushings, adjustment ratchet retained. One turn of the hand-wheel makes the full sweep of the front wheels, one-half turn to the right or left sharp turn. This construction is of the first order, and does all that can be done with a worm and gear sector and one turn of a 16 in. hand wheel. The steering-post carries nothing but the steering shaft and wheel, as the spark-time is governor-regulated and the throttle is pedal-controlled.

CHANGE GEAR.

This is an assemblage of very large hardened steel gears and shafts, all on very large Hess-Bright ball bearings, including the reversing pinion, all in a Parsons bronze lower shell, integral with the bevel gear housing which forms the middle member of the rear axle. This member is capped with bronze, full size cap, removable to permit access to and disassembling of the change gear and live axles. The propeller shaft is also on Hess-Bright bearings, and as there are no universal joints, the whole assemblage, gears neutral, can be turned with thumb and finger easily. The substitution of Parsons bronze for the usual aluminum alloy makes a substantial structure, the very large ball bearings insuring great length of life. The writer has never seen any other speed change

which was so generously treated in all important directions by its designer, and the workmanship is the very best.

THE REAR AXLE.

The Parsons bronze middle member is divided horizontally and capped to make the change gear and bevel gear housing, and takes flanged tubular extensions on each side to complete the divided axle casing. The flanges are bolted to both of the casing members, but the cap can be removed and everything disassembled without disturbing anything except the pieces taken out. The axle casing sleeves are flanged and bracketed to take the sub-frame ends and brake-rockers. The wheels are on taper axle ends with keys and nuts, and the whole axle assemblage is as good as it can be made with the construction adopted. Parsons bronze is a more reliable material than any combination of castings of other material and steel tubes. The divided live axles are carried on Hess Bright ball bearings.

Simplex Control. The outside lever, ratchet retained, applies the rear hub brakes. The inside lever works the change gear. The small plunger pedal opens the muffler cut-out. The large pedal in the middle of the foot-board first disengages the clutch when pushed forward, and a cam-dwell on the pedal rocker holds the clutch free while continued pedal movement forward applies the emergency brake. The steering post carries nothing but the steering shaft and wheel. The spark time is regulated by the motor governor, and the throttle is handled by the horizontal pedal at right of steering post. The control is simple and easily handled.

The rear hub-drums are 11½x2 ins., internal bronze shoes hinged, fitted metal to metal, and expanded by rollers 180 degrees apart on short crank arms integral with the brake-rockers. This makes a rolling contact on the brake shoe ends, and avoids wear, as the rollers have a full circumference bearing on the rocker wrists. These brakes are operated by the outside hand-lever. A third brake-drum, 7 ins. diameter, having exterior, hinged, gun-metal bronze shoes, metal to metal, is placed on the propeller shaft, has the shoes applied by the single pedal, which first disengages the clutch and then holds the clutch free, while continued pedal movement to front applies this emergency brake.

BODY.

This is a tonneau, side doors, swinging to front or rear as ordered, with wide rear seats for three, and a capacious tool and spare-tire locker accessible through a long falling door in the back of the car. There is also a locker under the right side of the front seat for cattery placing or other use.

ON THE ROAD.

The "Simplex" carried the writer on several occasions for short distances, always showing prompt starting and perfect control with speed and power to spare, but there was no opportunity to give time to careful observation of the all-round work of this remarkable car until November 14.

The eager Simplex started at 2.00 P. M., E. J. Gulick driving, R. E. Maurer, mechanician, and Mr. W. E. Roe, a visiting mechanical engineer, and the writer, as passengers.

The Simplex is attracting great attention from experts, because it has a very carefully designed two-cycle motor of high power, and carries out three-point suspension in body support and straight line placing of its propulsion system very perfectly, and is already widely known as an advanced example of American motor car design.

Before starting the fuel tank was filled so that the consumption could be known, and the Simplex hustled for Elkhart, only 13 miles away, over level dirt roads, hard and fairly smooth. No attempt was made to go fast, the pace touching 30 miles only occasionally, and Gulick stopping the motor for many horses to get their senses back again, but the Simplex was in a hurry, and when the road was clear the swift air cut like a knife.

From Elkhart the south road to Middlebury was selected because of diversity of surface, sandy roads deeply rutted and small, steep hills abounding, and the hard, narrow road, where best, being full of dips and bumps admirably adapted to showing the value of three-point car body support. Over this not-much-used road the car was given about a third of her throttle opening, and sped on in silence except when the exhaust was opened to suit its rhythmic purring, which has a delightful uniformity. The deep ruts in sand made heavy, short hill-climbing very often, and the narrow, high pike gave plenty of side lurches in passing teams, so that all the movements and moods of the Simplex were fully exhibited. Another stop to thaw out was made on the return to Elkhart, and then the Simplex was headed for home over the smooth level dirt road, and the wintry air

Simplex car with one front wheel blocked up 13 in. above the road. Owing to the three-point chassis frame support this great elevation of one front wheel does not in the least affect the position of the body, which remains horizontal. The same 13 ins. elevation of the rear wheel does, of course, top the body up side-wise, but does not set up any distortion of the full length independent sub-frame supported on a globe joint in a bearing on top of the cross-wise front spring.

rushed past the tearful faces of her passengers while the 50-mile clip ate up the little run. The whole distance covered was about 49½ miles, and it took exactly three gallons of gasoline to fill the tank full again. The car weighs 2,250 pounds, and had in this run about 700 pounds of passengers, making nearly 3,000 pounds total load. In no instance was anything like full power given to the Simplex, which has made a mile and 200 feet in one minute on a dirt road, with four passengers up.

The most notable sensation of this Simplex run, to the writer, was the prompt response in quickened pace to the slightest variation in throttle opening, and the most impressive sound was the music of the exhaust, which has a metallic quality of tone. It is perhaps as much the use of ball-bearings of large diameter as the 5½-inch pistons, which makes the Simplex dart forward like an arrow from a bow when the throttle is opened a trifle, or it may be that the straight line propulsion, having no universal joints, together with the freedom from twisting due to three-point support give even more friction reduction than the writer has supposed, but whatever the mechanical cause may be the prompt responsiveness of the Simplex to fuel increase is most marked. The hardened and ground steering worm and sector, with absolutely no lost motion, make this car obedient to the slightest movement of the steering wheel, and the globed support of the body at its middle in front gives swaying instead of bouncing, and does away with all need for spring checking. With the exhaust fully muffled the Simplex is almost absolutely silent, and as for power and speed, this car has far more of both than can ever be used on a public highway. The slightest increase of throttle opening makes the Simplex bound forward like a high mettled horse struck with a whip. The spark is governor controlled, leaving the throttle only to the driver's discretion, and this ensures the correct instant of ignition, and may be a large factor in the Simplex promptness of response to fuel increase, and undoubtedly has much to do with the very good fuel economy shown. Over 16 miles to the gallon of gasoline is very much better than 3,000 pounds total load cars commonly show.

Although the Simplex can take almost anything on the high gear, the perfect smoothness and absolute silence of the gear shift tempts the driver to change the gear speed for hard work, and this run showed the value of four forward speeds very decidedly, much of the bad Middlebury road being taken on the second gear. Perhaps a very quick shift from high to low might cause the gear teeth to rub, but it is quite correct to say that no ordinary handling can make the Simplex gear give forth the least murmur of complaint, and this fine new car, full of original features, and extremely well made in every particular, fully justifies Mr. Gulick's pride in his maiden motor-wagon production. The Simplex is one of the notable new cars for 1906, and will not be easily nor frequently outclassed in any year to come, though Gulick believes he has even better things in store.

1906 Oldsmobiles

announce two new models for 1906, which are radically different from anything which they have previously made. One has a 2-cylinder, 2-cycle engine, and will list at $1200. Further particulars of this car are withheld, as it is not yet ready to be shown. The other is a 4-cylinder, 4-cycle car which lists at $2250 and is rated at 24-26 H. P. The cylinders of this are cast in pairs, completely water-jacketed. It has a cone clutch, shaft drive, sliding gear transmission, giving three forward speeds and one reverse speed change operated by a single lever. Ignition is by storage battery or magneto through four unit coils. It is equipped with 32x3½ in. tires, and wheels have Timken roller bearing axles. The old standard runabout, at $650, will also be continued.

A state association of clubs has been formed in New Jersey under the name "Associated Automobile Clubs of New Jersey," and commenced with eight clubs as charter members, viz.: New Jersey Automobile and Motor Club, New Jersey Automobile Club, Hudson County Automobile Club, Automobile Club of New Jersey, Mercer County Automobile Club, Monmouth Automobile Club, Atlantic City Automobile Club and Cape May Automobile Club. The initiation fee for clubs is $10 and for members of clubs $1. Non-affiliated automobilists are charged an initiation fee of $2. The annual dues will be $2 per member.

Fancy Wood Planes

No. 21—Double Boxed Bead

Sizes	Each
1/8, 1/4, 5/16, 3/8, 7/16 and 1/2 in	$0.60
5/8 and 3/4 in	65

No. 70—Brass Screw Stop Dado

Sizes	Each
1/4, 5/16, 3/8, 1/2, 5/8, 3/4 and 7/8 in	$1.50

No. 24 Skew Rabbet

Sizes	Each
1/2, 5/8, 3/4, 7/8 and 1 in	$0.60
1 1/4 in	65
1 1/2 in	70
1 3/4 in	80
2 in	90

No. 27—Jack Rabbet—2 Spurs

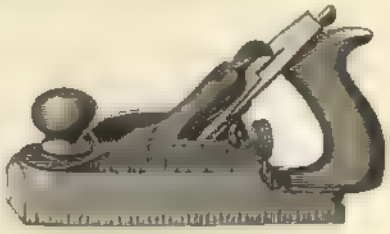
Sizes	Each
Regular Handle, 1 1/4, 1 1/2, 1 3/4 and 2 in	$1.70
Side Handle, 1 1/4, 1 1/2, 1 3/4 and 2 in	1.70

No. 51—Hollows and Rounds

Size No.	2	4	6	8	10	12	14	16	18	20	22	24
Works Circle, Inches	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	3	3 1/4	3 1/2
Size Iron, Inches	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 5/8	1 3/4
Per Pair	$1 00	1 00	1 00	1 00	1 00	1 00	1 15	1 15	1.15	1.35	1 35	1 35

Adjustable Wood Bottom Planes

BAILEY



No.	Length	Cutter	Each
21 Smooth.	7 in.	1 3/4 in	$1 50
22—Smooth,	8 in.	1 3/4 in	1.50
23—Smooth,	9 in.	1 3/4 in	1.50
24—Smooth,	8 in.	2 in	1.50

No.	Length	Cutter	Each
35 - Handled Smooth,	9 in.	2 in	$1 90
36—Handled Smooth,	10 in.	2 3/8 in	2.05

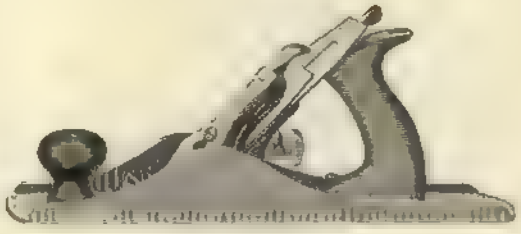
No.	Length	Cutter	Each
26 —Jack,	15 in.	2 in	$1.65
27 —Jack,	15 in.	2 1/8 in	1.90
27 1/2—Jack,	15 in.	2 1/4 in	1 90
28 —Fore,	18 in.	2 3/8 in	2.05
29 —Fore,	20 in.	2 3/8 in	2.05

No.	Length	Cutter	Each
30—Jointer,	22 in.	2 3/8 in	$2.20
31—Jointer,	24 in.	2 3/8 in	2.20
32—Jointer,	26 in.	2 5/8 in	2.40
33—Jointer,	28 in.	2 5/8 in	2.40
34—Jointer,	30 in.	2 5/8 in	2.60

One in a Box

Adjustable Iron Planes

BAILEY



No.		Length	Cutter	Each
1	—Smooth,	5½ in.	1¼ in	$1.65
2	—Smooth,	7 in.	1⅝ in	2.05
3	Smooth	8 in.	1¾ in	2.20
4	—Smooth,	9 in.	2 in	2.40
4½	—Smooth,	10 in.	2⅜ in	2.75
5	—Jack,	14 in.	2 in	2.75
5½	—Jack,	15 in.	2¼ in	3.15
6	Fore	18 in.	2⅜ in	3.50
7	—Jointer,	22 in.	2⅜ in	4.00
8	—Jointer,	24 in.	2⅝ in	4.80

BAILEY, CORRUGATED BOTTOM

No.		Length	Cutter	Each
2C	—Smooth,	7 in.	1¾ in	$2.05
3C	—Smooth,	8 in.	1¾ in	2.20
4C	Smooth	9 in.	2 in	2.40
4½C	—Smooth,	10 in.	2⅜ in	2.75
5C	—Jack,	14 in.	2 in	2.75
5½C	—Jack,	15 in.	2¼ in	$3.15
6C	—Fore,	18 in.	2⅜ in	3.50
7C	Jointer,	22 in.	2⅜ in	4.00
8C	—Jointer,	24 in.	2⅝ in	4.80

STANLEY BED ROCK

No.		Length	Cutter	Each
604	—Smooth,	9 in.	2 in	$2.75
605	—Jack,	14 in.	2 in	3.20
606	—Fore,	18 in.	2⅜ in	3.85
607	—Jointer,	22 in.	2⅜ in	$4.60
608	—Jointer,	24 in.	2⅝ in	5.50

STANLEY BED ROCK, CORRUGATED BOTTOM

No.		Length	Cutter	Each
604C	Smooth	9 in.	2 in	$2.75
605C	Jack,	14 in.	2 in	3.20
606C	Fore,	18 in.	2⅜ in	3.85
607C	—Jointer,	22 in.	2⅜ in	$4.60
608C	—Jointer,	24 in.	2⅝ in	5.50

All Above One in a Box

Block Planes

STANLEY

No.	Length	Cutter		Each
100	3½ in.	1 in.	Not Adjustable.	$0 25

No.	Length	Cutter		Each
102	5½ in.	1¼ in.	Not Adjustable.	$0 40
103	5½ in.	1¼ in.	Adjustable	55

No.	Length	Cutter		Each
110	7½ in.	1¾ in.	Not Adjustable.....	$0.55
120	7½ in.	1¾ in.	Adjustable.....	.75

No.	Length	Cutter		Each
220	7½ in.	1¾ in.	Adjustable.	$0.75

BAILEY ADJUSTABLE

No.	Length	Cutter		Each
9½	6 in.	1¾ in.	Japanned Trim	$1 10
16	6 in.	1¾ in.	Nickel Trim	1 25

No.	Length	Cutter		Each
9¾	6 in.	1¾ in.	Japanned Trim, with Handle,	$1 30

Low Angle

No.	Length	Cutter		Each
60	6 in.	1½ in.	Nickel Trim	$1 25
60½	6 in.	1½ in.	Japanned Trim.	1 10
65	7 in.	1¾ in.	Nickel Trim.....	$1 35
65½	7 in.	1¾ in.	Japanned Trim.....	1.20

Knuckle Joint

No.	Length	Cutter		Each
18	6 in.	1¾ in.	Nickel Trim.....	$1.30
19	7 in.	1¾ in.	Nickel Trim.....	1.40

Double End, Bull Nose or Block

No.	Length	Cutter		Each
131	8 in.	1¾ in.	.....	$1.50

Fancy Iron Planes

STANLEY PIANO MAKERS EDGE

For Piano Makers and all Cabinet Workers, for trimming inside work, where space prevents the use of any other plane.

No.		Each
97	—2¼ in. Cutter	$2.20

STANLEY RABBET AND BLOCK

Detachable Plate changes the plane from a Block to a Rabbet, Cutter is set on a Skew

No.	Length	Cutter	Each
140	—7 in.	1¾ in.	$1.40

STANLEY CARRIAGE MAKERS RABBET

No.	Length	Cutter	Each
10½	— 9 in.	2⅛ in.	$2 75
10	—13 in.	2⅛ in.	3.30

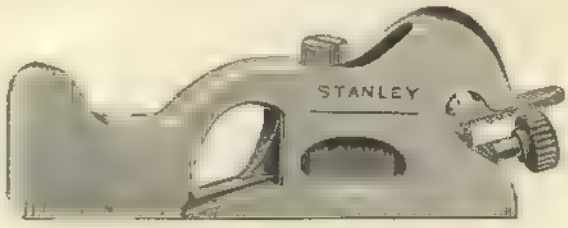
STANLEY BULL NOSE RABBET

Adjustable Throat

No.	Length	Cutter	Each
75	—4 in.	1 in.	$0 40

CABINET MAKERS RABBET

No. 90

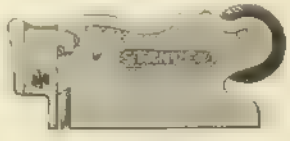


Nos. 92, 93 and 94

Nickel Plated, both Cutter and Throat Opening are Adjustable: can be used Right or Left

No.	Length	Cutter	Each
90	—4 in.	1 in.	$2.20
92	—5½ in.	¾ in.	2.20
93	—6½ in.	1 in.	$2 60
94	—7½ in.	1¼ in.	3 00

STANLEY SIDE RABBET



For Side Rabbeting and Trimming Dados, Mouldings and Grooves of all sorts. A Reversible Nose Piece will give the Tool a form by which it will work up into Close Corners when required.

No.		Each	No.		Each
98	—Right Hand, Length 4 in	$1 00	99	—Left Hand, Length 4 in	$1 00

All Above Packed One in a Box

Fancy Planes

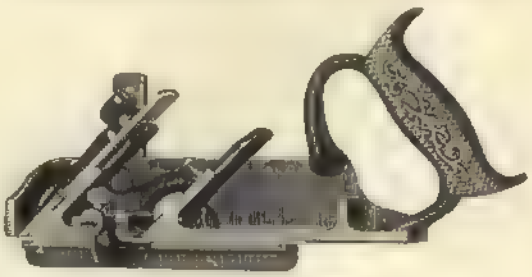
STANLEY IMPROVED RABBET

Will lie perfectly flat on either side and can be used with either Right or Left hand when planing into corners or up against perpendicular surfaces. Iron Stock, Fitted with Depth Gauge.

With Spur

No.	Length	Cutter	Each
190	8 in.	1½ in.	$1.25
191	8 in.	1¼ in.	1.25
192	8 in.	1 in.	1.25

STANLEY RABBET AND FILLETSTER



The Arm to which the Fence is secured can be screwed in to either side of the stock, making a Right or Left Hand Filletster, with Adjustable Spur and Depth Gauge. Remove the Arm to which the Fence is secured and a handled Rabbet Plane is made with two seats for the Cutter and can be used as a Bull Nose Rabbet.

No	Length	Cutter	Each
78	8½ in.	1½ in.	$1 65

STANLEY LOW ANGLE BLOCK

Adapted for use in cutting across the grain on heavy work, where more power is required than can be obtained by the use of the ordinary Block Plane. Is fitted with patent adjustable throat, which enables the user to work equally well on hard or soft wood.

No.	Length	Cutter	Each
62	14 in.	2 in.	$2.85

STANLEY FURRING

A new tool for preparing lumber as it comes roughly sawed from the mill, to remove the fur and grit before using a smooth Plane.

The construction of the Bottom is such that it will accomplish this very rapidly.

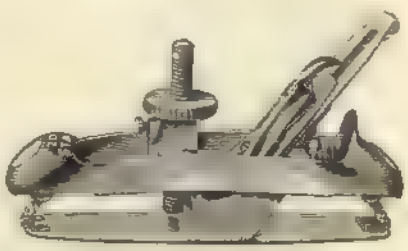
No.	Length	Cutter	Each
340	10 in.	2 in.	$1.65

STANLEY ADJUSTABLE CIRCULAR

By means of a graduated scale on the gears the face can be accurately set to work an Arc of the same circle, both convex and concave, by turning the Knob on the front of the plane.

No.	Cutter	Each
113	1¾ in.	$3.00

VICTOR CIRCULAR



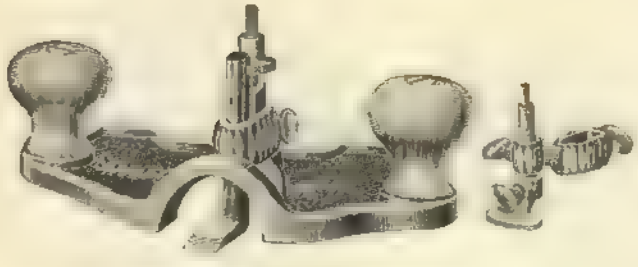
The ends of the flexible face being fixed and the force applied at the center, great accuracy of adjustment is possible and the face is held firmly in position.

No.	Cutter		Each
20½	1¾ in.	Japanned	$3 50

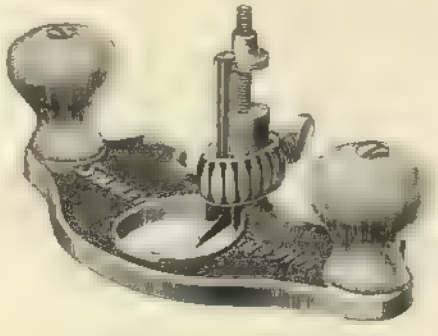
All Above Packed One in a Box

Fancy Iron Planes

STANLEY WOODWORKERS ROUTERS



No. 71—Open Throat

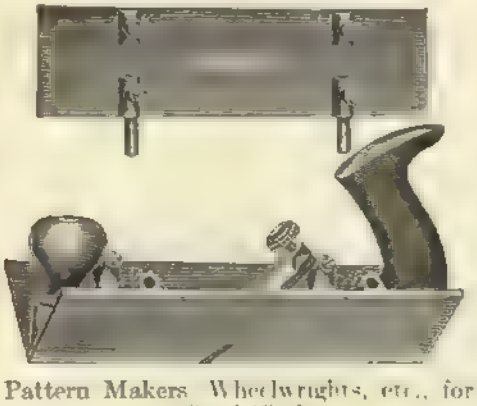


No. 71½—Closed Throat

For Carpenters, Cabinet Makers, Stair Builders, Pattern Makers and Wheelwrights. The Bits can be clamped to back side of the upright post and outside of stock. In this position they will Plane into Corners, Router out Mortises for Sash Pulleys, or will smooth surfaces not easily reached by any other Tool. Attachment shown can be substituted for the Collar that holds the Cutter when the Plane requires a Plane with a Closed Throat.

No.		Each
71	—Open Throat, Nickel Plated Stocks, with Steel Bits ¼ and ½ in	$2.05
71½	—Closed Throat, Nickel Plated Stocks, with Steel Bits ¼ and ½ in	1 65

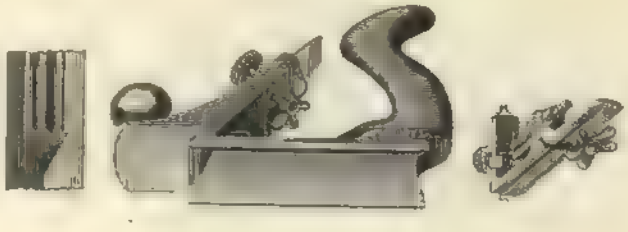
STANLEY CORE BOX



Used by Pattern Makers, Wheelwrights, etc., for Planing out Semi-Circles

No.		Each
57	Works Semi-Circles up to 5 in. Diam., Has One pair Addition Section 2½ in. wide	$4.40

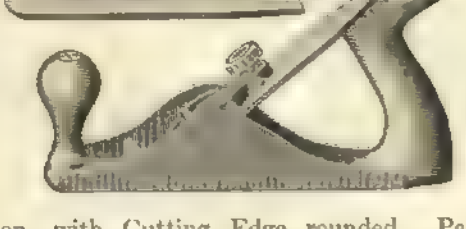
STANLEY CHAMFER



For Beading, Reeding or Moulding a Chamfer, will do perfect Chamfer or Stop-Chamfer work of all ordinary widths.

No.		Each
72½	9 in. long, 1⅝ in. Cutter, with Beading and Moulding Attachment	$3 30

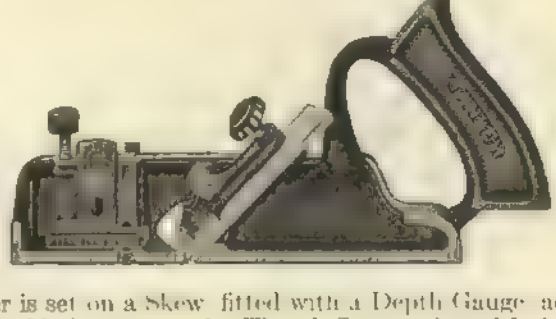
STANLEY IMPROVED SCRUB



Single Iron, with Cutting Edge rounded. Particularly adapted for Roughing down work, before using a Jack or other Plane.

No.		Each
40	—Iron Stock, 9½ in. long, 1¼ in Cutter	$1.10

STANLEY IMPROVED DADO



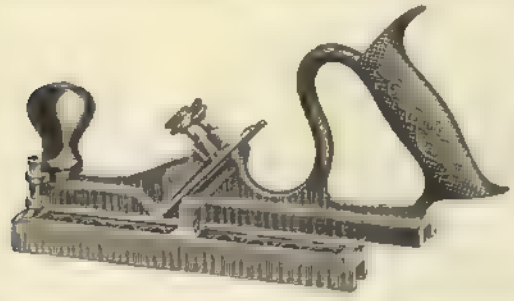
Cutter is set on a Skew fitted with a Depth Gauge adjustable by means of a Thumb Screw; also with Adjustable Spurs, which can be adjusted to take up wear, as well as Depth of Cut.

No.		Each
39	—8 in. long, width of Cutter, ¼, ⅜, ½, ⅝, ¾, ⅞ or 1 in.	$1 65

Always state Width of Cutter When Ordering

Fancy Iron Planes

STANLEY TONGUING AND GROOVING



The Fence is hung on a Pivot and can be swung around End for End covering one of the Cutters making a guide for Grooving an exact Match for the Tongue

No.		Each
48	—Nickel Plated, for $\frac{3}{4}$ to $1\frac{1}{4}$ in Boards	$2 75

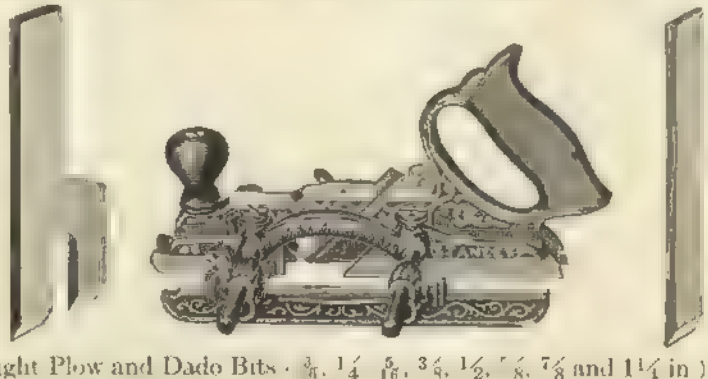
STANLEY DOUBLE-END MATCH

With one side a Tongue can be cut and by reversing Ends a Groove can be cut to match.

Nickel Plated

No		Each
148	Matches $\frac{7}{8}$ in. Boards, Cuts Groove $\frac{1}{4}$ in	$2 20

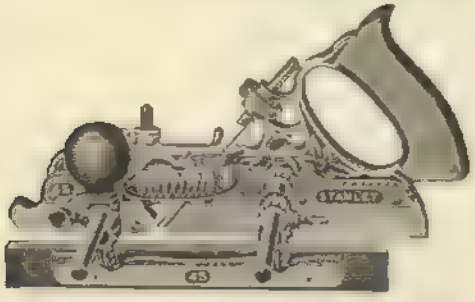
TRAUTS ADJUSTABLE DADO, FILLETSTER, PLOW, ETC.

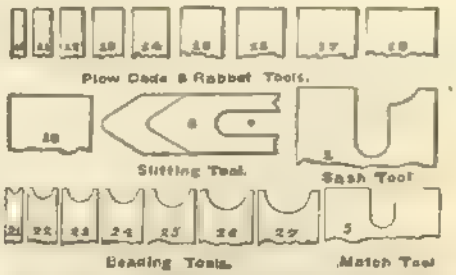


This Tool is accompanied by eight Plow and Dado Bits ($\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{7}{16}$, $\frac{7}{8}$ and $1\frac{1}{4}$ in.), a Filletster Cutter, a Slitting Blade and a Tonguing Tool. All (except the Slitting Blade) are secured in the main stock on a skew

No.		Each
46	—Nickel Plated Stock and Fence	$8 00

STANLEY ADJUSTABLE BEADING, RABBET AND MATCHING





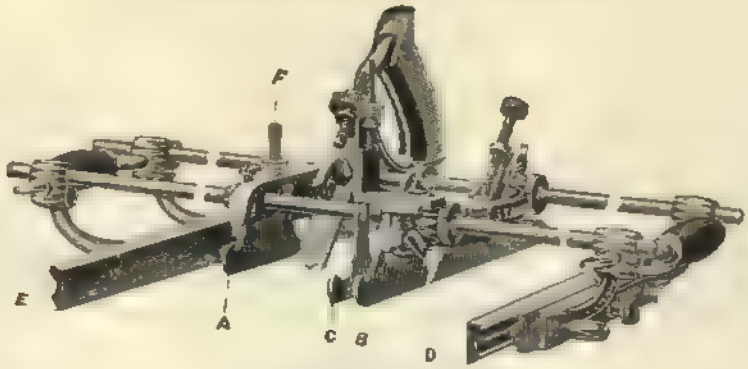
The Plane combines a Main Stock and a sliding section so arranged that Cutters of different widths can be used. Each Plane is fitted with an Adjustable Fence or Guide and a Depth Gauge, and also with spurs for use in working across the grain; can be used either Right or Left Hand.

This Plane embraces: 1 Beading and Center Beading Plane; 2 Rabbet and Filletster; 3 Dado; 4 Plow; 5 Matching Plane; 6 Sash Plane; 7 A Superior Slitting Plane. Each Plane has seven Beading Tools ($\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, and $\frac{1}{2}$ inch); ten Plow and Dado Bits ($\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch); a Slitting Blade, a Tonguing Tool and a Sash Tool.

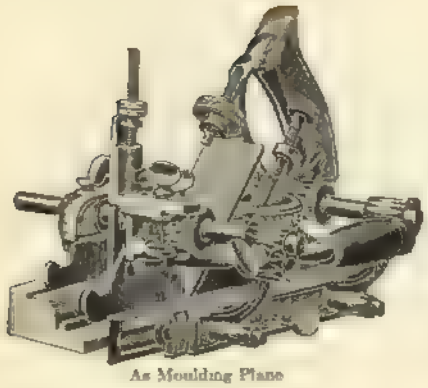
No.		Each
45	—Nickel Plated, with Twenty Tools	$9.00

All Above Packed One in a Box

Fancy Iron Planes

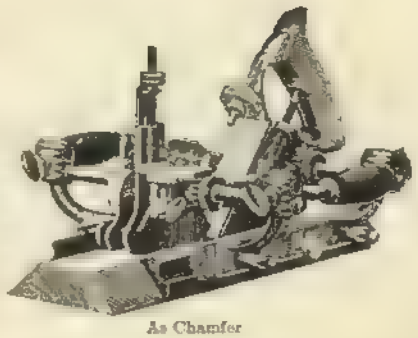


STANLEY PATENT UNIVERSAL PLANE No. 55


As Moulding Plane

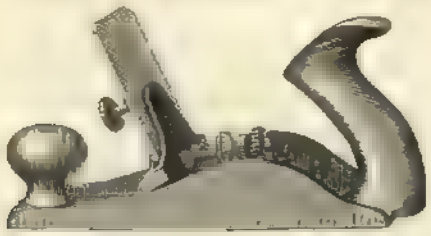
This tool in the hands of an ordinary carpenter can be used on all lines of work covered by a full assortment of "Fancy" Planes.

The Plane consists of:—
A Main Stock (A) with two sets of transverse sliding arms, a depth gauge (F) adjusted by a screw, and a Slitting Cutter with stop.
A Sliding Section B with a patent vertical and lateral adjustable bottom.
The Auxiliary Center Bottom C is to be placed in front of the Cutter as an extra support or stop, when desired. The bottom is adjustable both vertically and laterally.
Fences D and E are adjustable laterally by means of a screw, for extra fine work. The fences can be used either side of the Plane and the rosewood guards can be placed at any desired gauge up to 4½ inches by loosening the screws on the face. Each fence can be reversed for Center Beading work, if desired.
An Adjustable Stop to be used in beading the edges of matched boards is inserted on the left hand side of sliding Section (B)


As Chamfer

No.		Each
55—Universal, Nickel Plated, with 52 Cutters, in a Wooden Box		$18 00

ADJUSTABLE SCRAPER PLANE



For Scraping and Finishing Veneers or Cabinet Work
Can be used as Tooth Plane

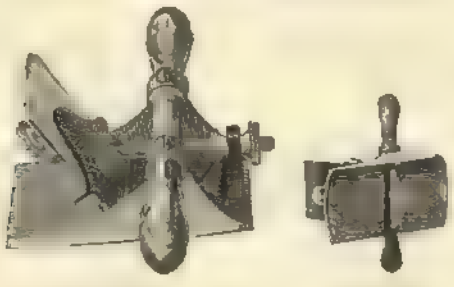
No.	Length	Cutter	Each
112—9 in.		3 in.	$2.20

STANLEY RABBET CABINET SCRAPER

Tilting Rosewood Handle and Knob

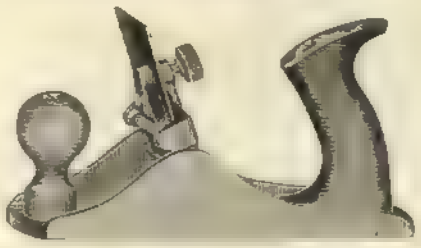
No.	Length	Cutter	Each
85—8 in.		2 in.	$3.00

ADJUSTABLE VENEER SCRAPERS


No. 12 No. 12½

No.	Cutter		Each
12	—3 in.	Iron Face	$2 50
12½	—3 in.	Wood Face	3 30

STANLEY CABINET SCRAPER



Stationary Rosewood Handle and Knob

No.	Length	Cutter	Each
87—8 in.		2 in.	$2.00

All Above Packed One in a Box

Beaders

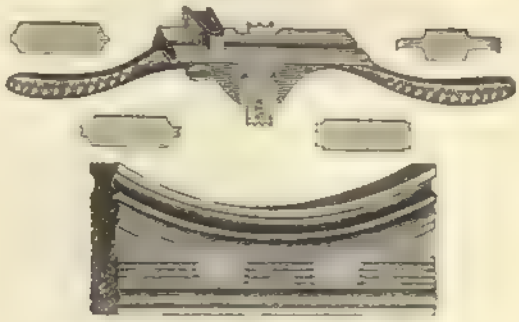
SINGLE HANDED

Nickel Plated, with six Steel Cutters and one blank

No.	Each
69	$0.75

One in a Box

UNIVERSAL



Nickel Plated, with seven Steel Cutters

No.	Each
66	$1 00

Plane Irons

STANLEY

Single or Cut Iron

Double Iron

For Regular Stanley Bench Planes

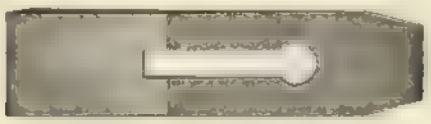
Size, Inches	1¼	1⅝	1¾	2	2⅛	2¼	2⅜	2⅝
Single or Cut Irons, Each	$0 18	21	23	25	27	28	29	32
Double Irons, Each	32	35	38	42	45	47	48	50

For Regular Bench Planes, Orders for Plane Irons should designate the Number of Plane for which wanted

Bailey Block Plane Irons

For Plane No.	9½	9¾	60	102	103	110	120
Each	$0 17	.17	.17	.09	.09	.13	.17

BUCK BROS.



Single or Cut Iron

Double Iron

Extra Quality Cast Steel

No. 59—Cut or Single Irons

Size, Inches	1¼	1⅜	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝
Per Doz	$3 10	3 15	3 15	3 20	3 30	3 60	3 75	3 90	4 50	5 00	5 25	5 90

One Doz in a Box

No. 60—Double Irons

Size, Inches	1¼	1⅜	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝
Per Doz	$6 00	6 00	6 10	6 10	6 30	6 70	6 90	7 20	7 90	8 75	9 30	10 15

One-Half Doz in a Box

No. 68—Double Irons, for Small Planes

Size, Inches	1	1⅛
Per Doz	$5 75	5 75

One-Half Doz in a Box

Spoke Shaves

No.	Handle	Cutter		Per Doz.
51	10 in	2¼ in.	Double Iron Raised Handle	$3 50

No.	Handle	Cutter		Per Doz
54	10 in.	2¼ in.	Adjustable, Straight Handle.	$4 50

No.	Handle	Cutter		Per Doz.
58	10 in	2¼ in	Double Iron, Straight Handle.	$3 00

No.	Handle	Cutters		Per Doz.
60	10 in	1½ in.	Double Cutter, Hollow and Straight	$4.50

No.	Handle	Cutter		Per Doz.
64	9 in	1¾ in.	Straight Handle	$2 00

Universal

No.		Per Doz.
67	—Nickel Plated Detachable Rosewood Handles. One-Twelfth Doz. in a Box	$18.00

Razor Edge, Iron
Adjustable Front and Adjustable Cutter

No.		Length	Cutter	Each
72	—Japanned	11 in.	2 in	$1.00

Razor Edge, Rosewood
Adjustable Front and Adjustable Cutter

No.		Length	Cutter	Each
81	—Rosewood	11 in.	2 in	$1.40

No.		Per Doz.
1	—Millers Falls, 2 in. Cutter Nickel Trim, Detachable Cocobolo Handles, works in Small Circles	$9 00

No		Per Doz
2	—Millers Falls, 2 in. Cutter, Cuts Flat, Concave or Convex, Adjustable, Cocobolo Handles, Nickel Trim	$12.00

Stanley Cornering Tool

For Rounding Sharp Edges, a different size Cutter at each end will cut with grain of wood

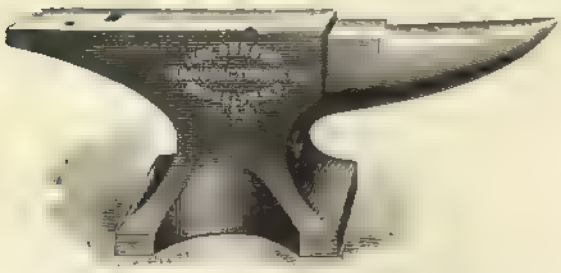
No.		Per Doz.	No.		Per Doz
28	—1/16 and 1/8 in. Cutters	$4.80	29	—¼ and ⅜ in. Cutters	$4.80

Blacksmiths Solid Box Vises

Wrought Iron, Steel Faced Jaws

No.	Jaws, in	Weight, lbs	Each
35	$3\frac{3}{4}$	35	$10 00
40	4	40	10 50
45	$4\frac{1}{4}$	45	11 00
50	$4\frac{1}{2}$	50	11 50
55	$4\frac{3}{4}$	55	12 00
60	5	60	13 00
65	5	65	14 00
70	$5\frac{1}{4}$	70	15 00
80	$5\frac{1}{2}$	80	17 50
90	$5\frac{3}{4}$	90	20 00
100	6	100	22 00
120	$6\frac{1}{2}$	120	26 00
140	7	140	33 00

Anvils



Hay-Budden

Made from Best American Wrought Iron and Faced with the Best Crucible Cast Steel. Top and Bottom are each one Solid Piece and Welded at the Waist. The Steel Faces are put on in one Solid Piece.

Per lb. Base

Base Sizes, 80 to 425 pounds

Advances over Base Size

20 to 29 pounds	Advance per pound 8	cents
30 to 39 pounds	Advance per pound 5	cents
40 to 49 pounds	Advance per pound 3	cents
50 to 59 pounds	Advance per pound 2	cents
60 to 69 pounds	Advance per pound 1	cent
70 to 79 pounds	Advance per pound ½	cent
426 to 625 pounds	Advance per pound ½	cent
626 to 800 pounds	Advance per pound 1	cent

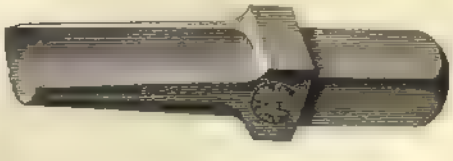
Carried in Stock from 40 to 250 Pounds

Vulcan

Face is one Solid Piece of Tool Steel, Thoroughly Welded to the Body of the Anvil. It is then Accurately Ground and Tempered. The Body is made of Superior Pig Iron, being much more solid than Wrought Iron.

No.	Weight, lbs.	Each
2	20	$4.00
3	30	4 50
4	40	5.25
5	50	6 00
6	60	6.50
7	70	7.25
8	80	8 00
9	90	9 00
10	100	10 00

Anvil Hardies



No.		Per Pound
1310	—Sizes ½, ⅝, ¾, ⅞, 1 and 1¼ in. wide	$0 42
1180B	—Sizes ¾ and ⅞ in. wide	$0 80

In ordering Anvil Hardies always specify Size of Hole in Anvil

Blacksmiths Tools

Solid Cast Steel, Oil Finished

SWAGES

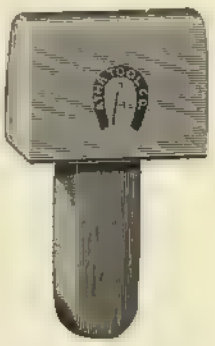
No. 1190—Top Swage

No. 1200—Bottom Swage

No.		Per Pound
1190—Top Swage, Sizes ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼ and 1½ in		$0.42
1200—Bottom Swage, Sizes ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼ and 1½ in		.42

FULLERS

No. 1210—Top Fuller



No. 1220—Bottom Fuller

No.		Per Pound
1210—Top Fuller, Sizes ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼ and 1½ in		$0.42
1220—Bottom Fuller, Sizes ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼ and 1½ in		.42

In ordering Bottom Swages or Fullers, always specify Size of Shank or Anvil Hole

FLATTERS

No. 1230—Flatter

No.		Per Pound
1230—Flatter, Sizes 2, 2½, 3, 3½ and 4 in		$0.42

SET HAMMERS

No. 1250—Set Hammer

No.		Per Pound
1250—Set Hammer, Sizes 1¼ and 1½ in		42

HOT AND COLD EYE CHISELS

No. 1290—Cold Eye Chisel

No. 1300—Hot Eye Chisel

No.		Per Pound
1290—Cold Eye Chisels, Sizes 1¼, 1⅜ and 1½ in		$0 42
1300—Hot Eye Chisels, Sizes 1¼, 1⅜ and 1½ in		.42

ROUND EYE PUNCH

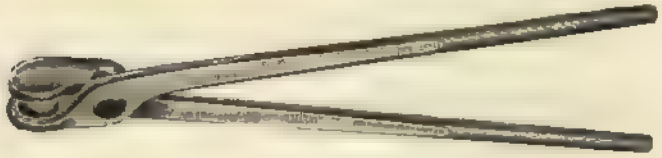
No.		Per Pound
1270—Round Eye Punch, Sizes ¼, ⅜, ½, ⅝, ¾, ⅞ and 1 in		$0.42

HEADING TOOL

No.		Per Pound
1280—Heading Tool, Sizes ¼, ⅜, ½, ⅝, ¾, ⅞ and 1 in		$0.42

Blacksmiths Tongs

Drop Forged, Solid Steel, Oil Finished

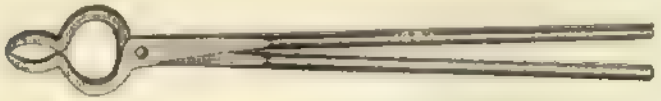


Horseshoers
Recessed Jaws for Forging

No.	40
Length, in	14
Each	$0.75

Straight Lip

No.	60	62	64	66
Length, in	18	20	22	24
Each	$0 60	.65	.70	75



Pick Up
For Picking Up Hot Irons

No.	90
Length, in	24
Each	$1.50

Pick
For Holding Miners' Picks to sharpen

No.	50
Length, in	22
Each	$1.75

Flat Nose Gad

No.	86
Length, in	22
Each	$1.25

Bolt

Holds Iron	1/4	3/8	1/2	5/8	3/4	7/8	1
Length, in.	18	20	20	22	22	24	24
Each	$0 80	.90	90	1 00	1 00	1 15	1 25

HORSENAIL CLINCHER TONGS

No
26—Length 14 in., Solid Steel, Full Polished

Hellers

One-Half Doz in a Box

Per Doz
.$26.40

Bolt Clippers

New Easy
Made of Best Materials and Perfectly Adjusted. All Parts Interchangeable

No.	Cuts Bolts	Length	Weight	Each	No.	Cuts Bolts	Length	Weight	Each
0	5/16 in.	18 in	3 lbs	$3 75	2	1/2 in.	30 in.	7 1/2 lbs	$7 00
1	3/8 in.	24 in.	4 1/4 lbs	5.00	3	5/8 in.	36 in.	12 1/2 lbs.	9 00

Extra Cutters

For Bolt Clipper No.	0	1	2	3
Per Pair	$1.00	1.25	1 75	2 25

Blacksmiths Pincers

Heller Bros.
All Steel, Polished Jaws

No.	20
Length, in	14
Per doz	$24.00

One-Half Doz. in a Box

Vaughan & Bushnell
Solid Steel, Oil Finish, Polished Jaws

No.	12	14
Length, in	12	14
Per doz	$16.00	18.00

Hoof Cutting Nippers

Heller Bros.
Extra Cast Steel, Full Polished

No.	24A	24
Length, in	12	14
Per doz	$24 00	28.80

One-Half Doz. in a Box

Vaughan & Bushnell
Solid Steel, Oil Finish, Polished Jaws

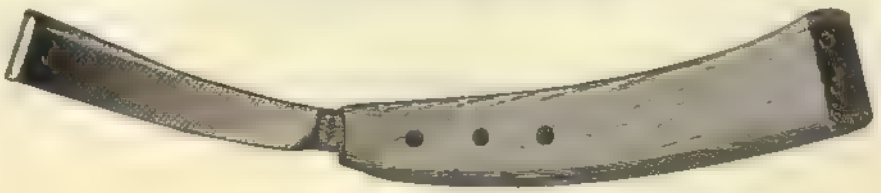
No.	14
Length, in	14
Per doz	$15.00

Hoof Parers

Heller Bros.

No.	Per Doz.
23—Length 14 in., Solid Cast Steel, Full Polished	$28.80

Farriers Knives

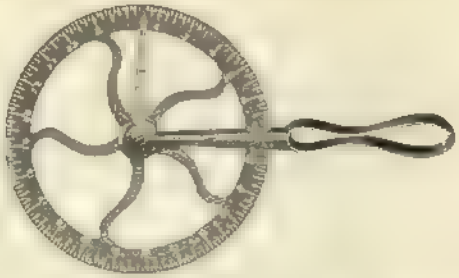


IXL—Wostenholm

No.	Per Doz.
7834—Width of Blade, ⅜, ½, ⅝ and ¾ in	$7.00

One-Half Doz. in a Package

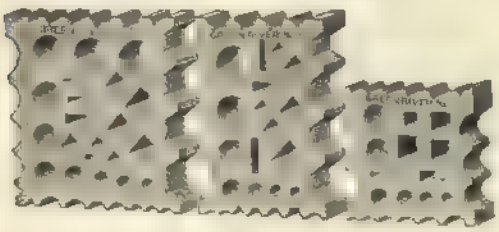
Tire Measuring Wheel



Accurately Graduated, with Index Hand, Raised Figures

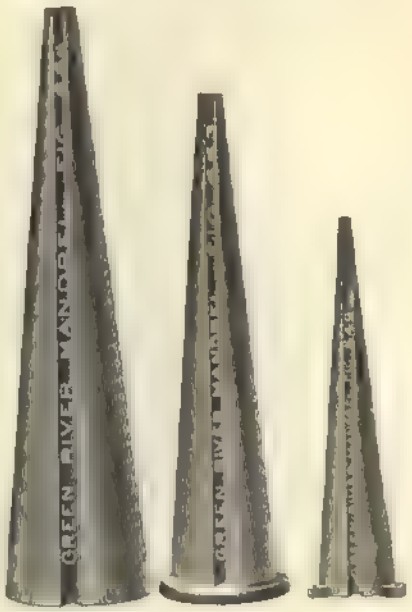
	Each
Tire Measuring Wheel, 24 in. Circle	$1.50

Swage Blocks



No.	Size	Approx. Weight	Per Pound
1	18x18x5 in.	310 lbs.	$0 10
2	16x16x4¼ in.	180 lbs.	.10
3	12x12x4 in.	100 lbs.	.10

Blacksmiths Cones or Mandrels



No.	Diam. Top	Approx. Bottom	Weight	Per Pound
1	3¾ in.	17⅝ in.	255 lbs.	$0 10
2	2¼ in.	13 in.	150 lbs.	.10

Blacksmiths Bellows

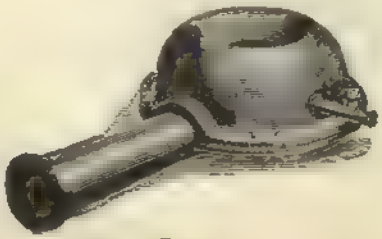
Hardwood Outside Boards Cross Cleated, Steel Cap and Funnel and Cowhide Split Leather

Standard											
Length, Inches	20	22	24	26	28	30	32	34	36	38	40
Weight, Pounds	20	25	30	35	40	45	50	60	70	80	90
Each	$10 00	10 00	10 00	11 00	12 00	13 00	14 00	16 00	18 00	20 00	23.00

Extra Long Standard				
Length, Inches	38	40	42	44
Weight, Pounds	100	105	110	115
Each	$24 00	28 00	34 00	40 00

For Molders and Hand Bellows, see Molders Tools, Page 113

Tuyere Irons

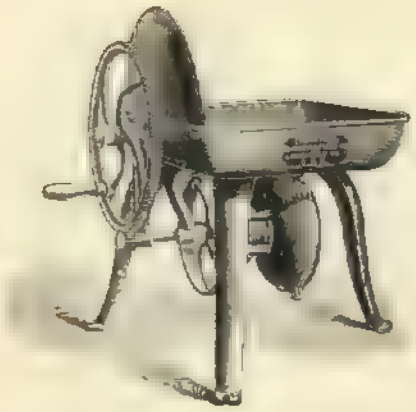


No.	Clarks	Each
2	—With Ball Valves, Weight 20 lbs.	$3.50

No.	Duck Nest	Each
5	—Weight 12 lbs.	$1 50

Champion Forges

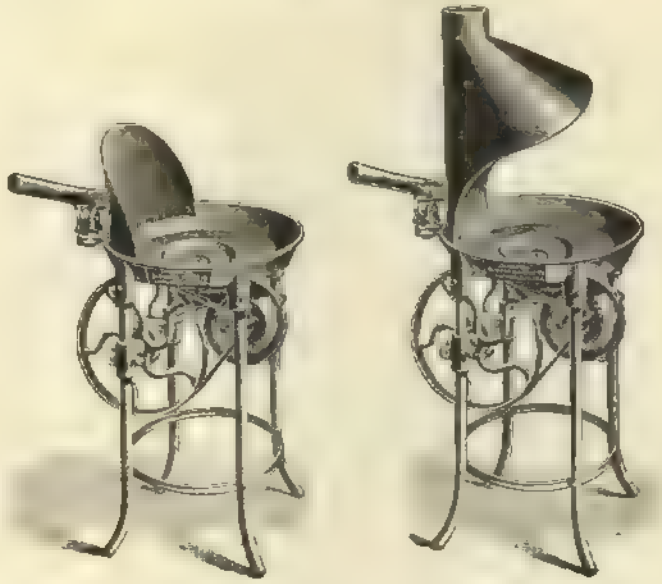
BENCH CRANK FORGE



For Prospectors and Light Work

No.		Each
21	—Bench Forge with Shield, Hearth 14×17 in., Fan 17 in., Weight 15 lbs., will produce a Welding Heat on 1 in. Iron in ten minutes	$16.00

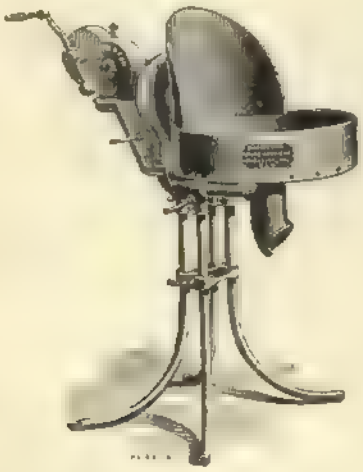
LEVER FORGES



For Light Repair Work, Etc.
Hearth 18 in. Diam., Fan 8 in. Diam.

No.		Each
150	—With Shield Weight 75 Pounds	$14 00
151	With Hood, Weight 80 Pounds	16 00

RIVET

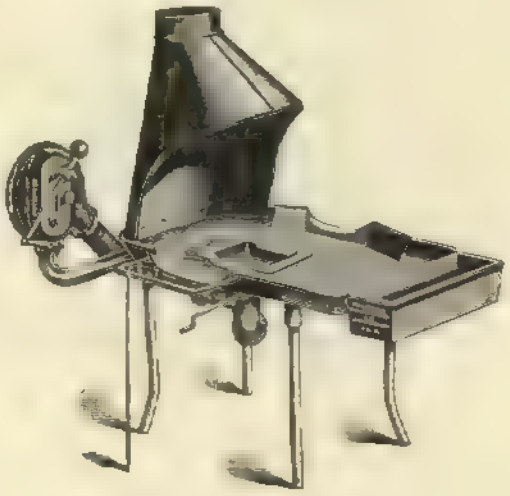


Adjustable Ball Bearings

Used by Railroads, Bridge Builders, Boiler and Structural Iron Workers.

No.		Each
401	High speed spiral gearings, Produces heat to weld 4 in. Iron, Hearth 18 in. Diam., Height 30 in., Fan 9 in., Weight 115 Pounds	$35 00

BLACKSMITH



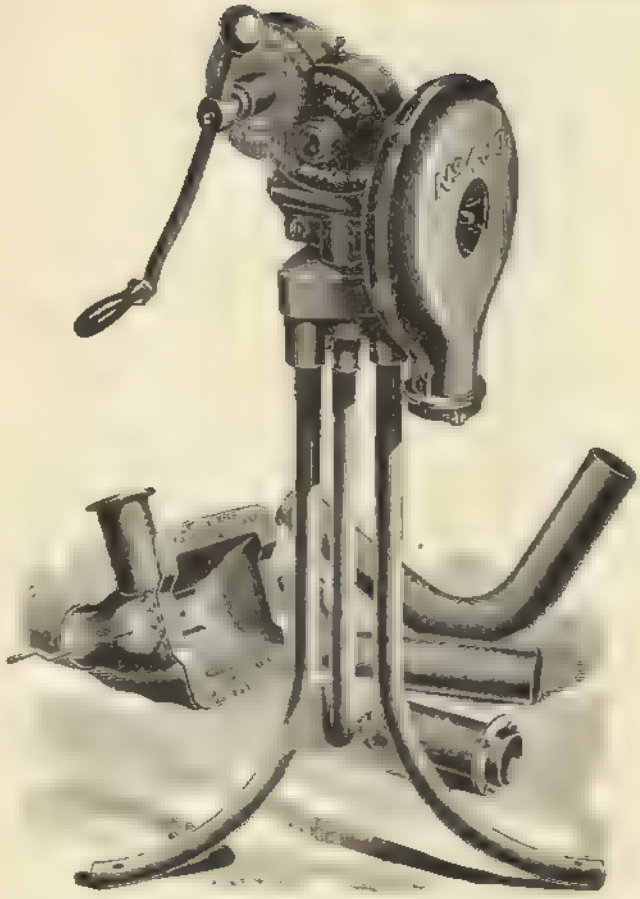
Champion Midway Spiral-Geared

For Blacksmiths and General Heavy Work

No.		Each
71	Cast Iron Hearth 32×45 in and Heavy Nest Tuyere Iron, Height 30 in., Fan 12 in., with Water Tank, Weight 340 Pounds	$55 00

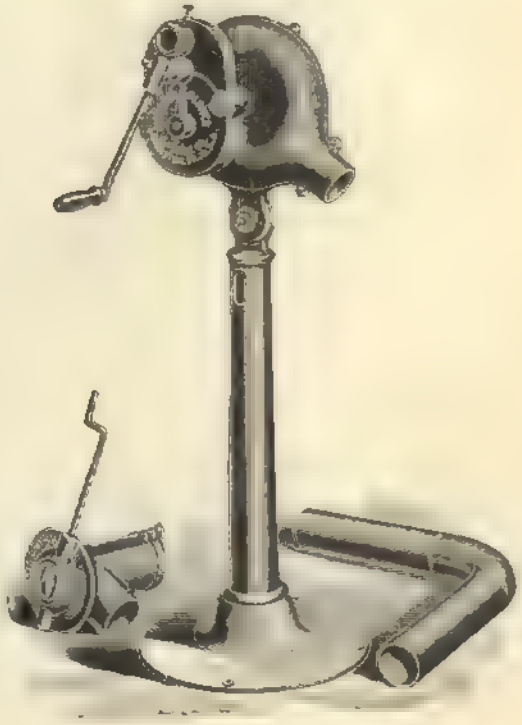
The Crank turns either way to produce Blast

Blacksmiths Blowers



Champion—Ball Bearing

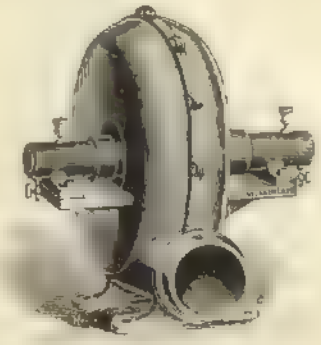
No.		Each
400	Patent Direct Drive, High Speed Spiral Gearing, Whirlwind Blast Anti-Choker Tuyere Iron and Piping complete, all working parts are made from the best Tool Steel and Phosphor Bronze, enclosed in an Oil Tight Casing Fan 12 in. Diam., Weight 150 lbs	$37 00



Lancaster—Geared

No.		Each
500	Direct Drive all Cogs and Gearing are in an Oil Tight Casing, Complete with Adjustable Nozzle Tuyere Iron and Piping, Smooth running Crank turns either way to make a Blast, Fan 12 in. Diam., Weight 110 lbs	$20 00

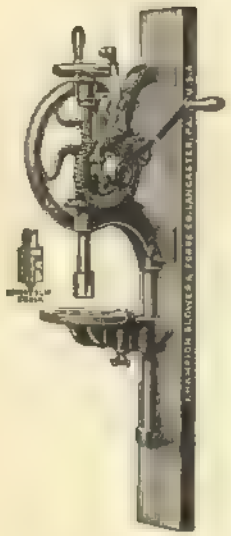
Power Blowers



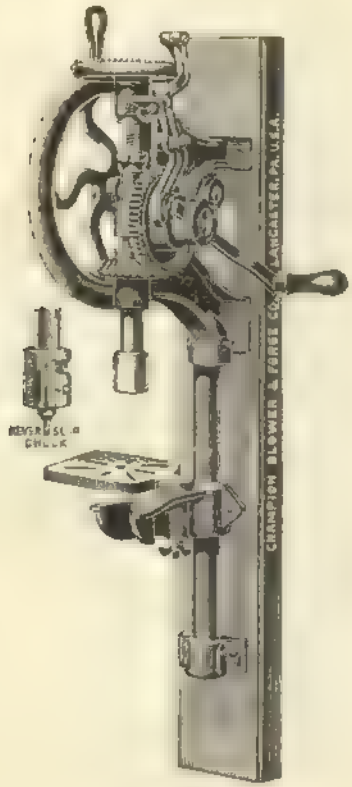
Intended for Blowing Fires in small Stationary and Portable Boilers also for Forge Fires and various purposes where a small current of air is desired

No.		Each
0	Champion Blower, 10 in. High; will blow one fire, Weight 15 lbs	$ 8 00
00	Champion Blower, 14 in. High will blow two ordinary fires, Weight 30 lbs	10 00

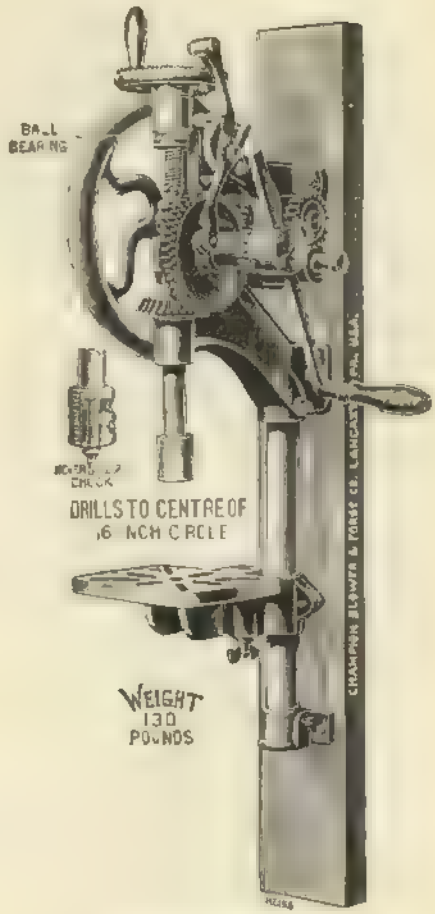
Upright Post Drills



No. 101



No. 90

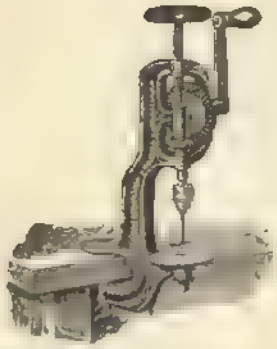


New Champion BB

No.		Each
101—**Automatic Self Feed, Back Geared, Slotted lathe turned Table. Drills to center of 12 in. Circle, Never Slip Chuck,** bored for ½ in. Straight Shank Drills, for holes up to ¾ in, Weight 80 lbs		$7.00
90—**Automatic Self Feed, Full Back Geared with speed, Slotted Square Lathe Turned Table, Drills to the center of a 14½ in. Circle, Never Slip Chuck bored for ½ in. Straight Shank Drills, for holes up to 1 in., Weight 100 lbs.**		8 50
New Champion "B. B." Ball Bearing, Full Automatic Self Feed, Lathe turned square slotted Table has three gears in order to give the second speed the same motion of the crank that the first speed has. Drills to the center of a 16 in. hole. Never Slip Chuck, bored for ½ in. straight shank Drills, for holes up to 1¼ in., Weight 130 lbs .		12 50

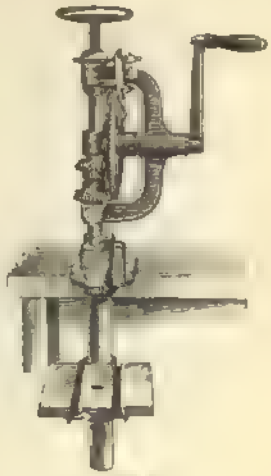
Bench Drills

Goodells



Nos. 8 and 8½

Nos. 9 and 9½



No. 11

No.		Each
8	– Solid Iron Frame, Cut Gears, Steel Feed Screw, Adjustable Table, Three Jaw Chuck, Capacity 0 to $\frac{1}{4}$ in. and 8 Fluted Drills $\frac{1}{16}$ to $\frac{11}{64}$ in.; Height from Table to Feed Wheel, 13 in.	$5 00
8½	Same as No. 8 with the addition of special Vise equipment with Jaws Opening $1\frac{3}{16}$ in.	6 50
9	Solid Iron Frame, Cut Gears with two speeds which can be quickly changed by the shifter; Adjustable Table and Steel Feed Screws, Fitted Three Jaw Chuck, Capacity 0 to $\frac{3}{8}$ in. and 8 Fluted Drills $\frac{1}{16}$ to $\frac{11}{64}$ in., Height from Table to Feed Wheel, 18 in.	$8 00
9½	Same as No. 9 with the addition of Special Vise Equipment with Jaws opening 2 in.	10 00
11	Solid Iron Frame, Tubular Steel Shaft, $1\frac{1}{2}$ in. Diam., 24 in. long, to which all working parts of the machine are clamped, Gears Cut from Solid Blanks; Three Jaw Chuck Capacity 0 to $\frac{1}{2}$ in., Table Milled and Slotted, size $6\times6\frac{1}{2}$ in., Adjustable up and down or right and left or can be removed, Two speeds changed by throwing cam attached to Shifter Knob; Automatic Feed.	$15.00

Tube Expander

Standard Roller

Expander has a Solid Body, thus Avoiding the Breaking of Cap Screws Made of the Best of Materials

Size, Outside Diam. of Tube	1¼	1½	2	2¼	2½	2¾	3	3½	4
Each	$10.00	10 00	10.00	12.00	14 00	16 00	18.00	23 00	30 00
Extra Rolls, Per Set 3	60	70	1 00	1 15	1 30	1 45	1 60	2 00	2 50

Tube Brushes

Tinned Steel

Size, Inches	2	2¼	2½	2¾
Each	$1 25	1 40	1 50	1 60

Size, Inches	3	3¼	3½	4
Each	$1 75	2 00	2 25	2 50

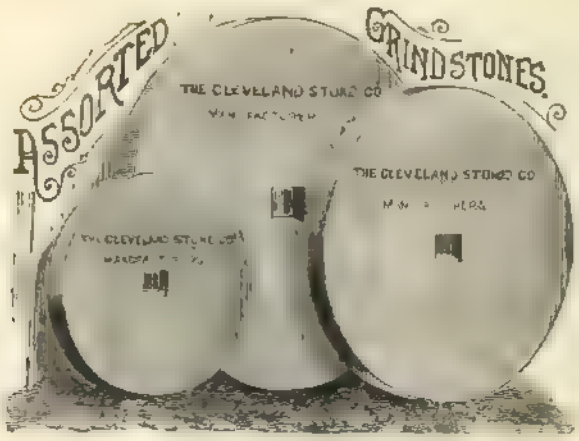
Tube Scrapers

Elliptic Spring Steel

Size, Inches	2	2¼	2½	2¾
Each	$2 00	2 25	2 50	2.75

Size, Inches	3	3¼	3½	4
Each	$3 00	3.25	3.50	4.00

Grindstones



Genuine Berea Uniform Medium Grit

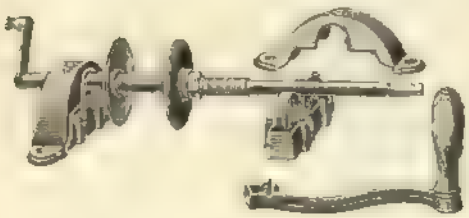
Weight, Pounds	15 to 40	41 to 200	200 and over
Per Pound	$0.04½	.05	06

Approximate Weight of Medium Size Grindstones

Diameter, Inches	24	27	30	36	42	48
2 in. Thick, Pounds	73	92	114	164	...	...
2½ in. Thick, Pounds	91	116	143	206	280	.
3 in. Thick, Pounds	110	139	171	247	336	....
4 in. Thick, Pounds	146	185	229	329	448	586

Larger Stones can be figured on above basis or 155 Pounds per Cubic Foot

Grindstone Fixtures



Standard
Cast Iron, Japanned

No.	Length Shaft	Weight, Per Doz.	Per Doz
15	15 in.	74 lbs.	$10.50
17	17 in.	78 lbs.	11.00
19	19 in.	86 lbs.	12 00
21	21 in.	116 lbs.	14 00

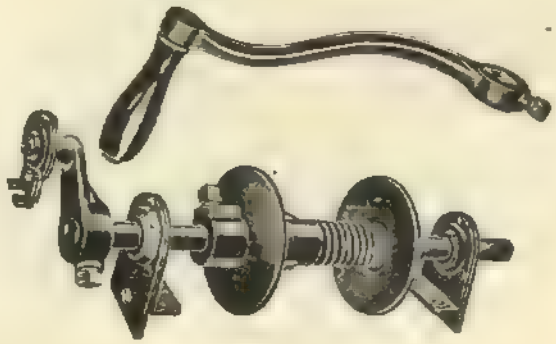
One-Half Doz. in a Case. Above Weights include Cases

Extra Shafts

No.	5	7	19	21
Per Doz	$4.50	5.00	5.50	7 00

Extra Cranks

For all Standard Fixtures, Per Doz $2 00



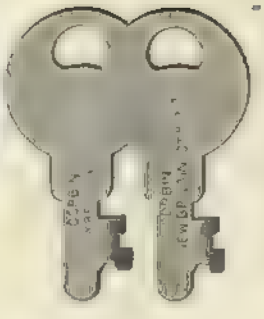
Ball Bearing

Can be applied to all ordinary Frames, Ball Bearing Journals, Adjustable on Shaft, Suitable for Stones 2 to 3 inches Thick.

No.	Per Doz
01—	$12.00

One Doz. Sets in a Box. Weight, including Case, 85 Pounds

Padlocks



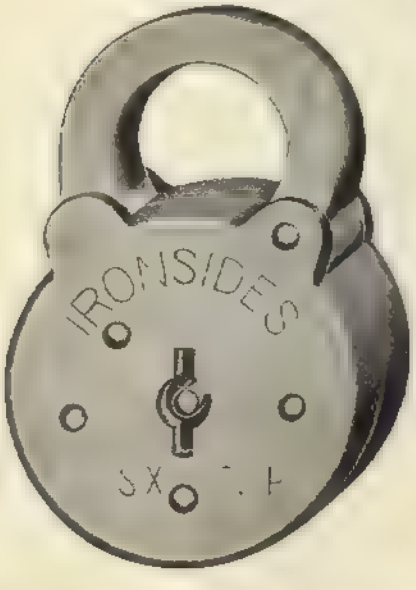
Steel Black Japanned, Bright Spring Shackle 2 Flat Steel Keys with each Lock, 5 changes to the Dozen.

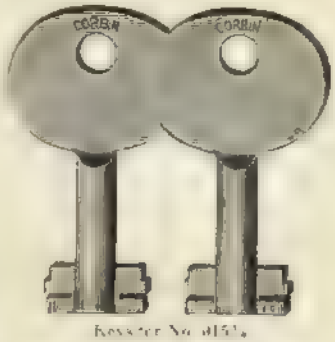
No.	Per Doz.
2904¼—1½ inch, "Mars"	$1.10
2905¼—1¾ inch, "Pluto"	1.30
2906¼—2 inch, "Orion"	1 50

One Doz. in a Box

Steel, Brass Plated, Heavy Cast Spring Shackle, 4 Wards. 2 Flat Steel Nickel Plated Keys, 12 changes to the Dozen.

No.	Per Doz
2901¾—2 inch	$2 00





Keys for No. 915½

Keys for No. 916¾

Steel, Brass Plated, Brass Plated Heavy Spring Shackle, Six Secure Levers, 2 Double Bitted Keys with each Lock, 12 changes to the Dozen.

No.	Per Doz.
915⅛—2 inch	$3.70

One Doz. in a Box

Steel, Black Japanned, Bright Heavy Spring Shackle, Six Secure Levers, 2 Double Bitted N P. Flat Steel Keys with each Lock, 12 changes to the Dozen.

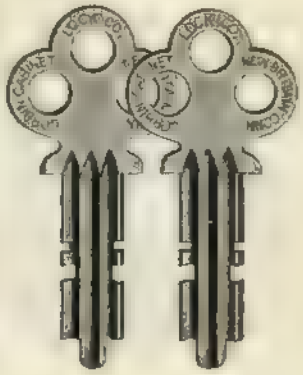
No.	Per Doz.
916¾—2 inch	$3.70

Padlocks

Steel, Brass Plated, Brass Plated Spring Shackle, Secure Levers and Wards, 2 Flat Steel Keys with each Lock, 12 changes to the Dozen.

No.	Per Doz.
2954¾—1½ inch	$1.70
2955¾—1¾ inch	2.10
2955¾—1¾ inch (Keyed Alike)	2 50
2956¾—2 inch	2 50

One Doz in a Box



Steel, Black Japanned, Bright Spring Swivel Shackle, 2 Nickel Plated Corrugated Keys with each Lock, 5 changes to the Dozen.

No.	Per Doz.
981¼—2 inch	$2.70

One Doz in a Box

Rural Free Delivery

Spring Shackle, 5 Wards, 2 Flat Steel Keys to each Lock, all different in a dozen. Made regularly with 36 changes, One Master Key with each Dozen Locks

No.	Per Doz.
02959—1¾ inch, Brass, Plain Finish, Galvanized Shackle	$2.70

One Doz in a Box

Padlocks

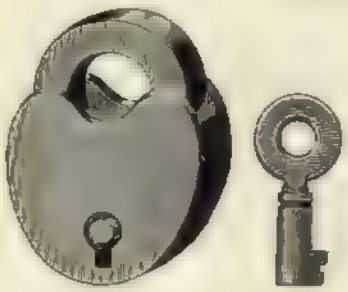
No. 1200

No. 464

No. 829

No.		Per Doz.
1200	1⅜ in., Brass, Aluminum Bronze Finish, Spring Shackle, Self Locking, 24 Keyed	$3 00
464—	2 in., Solid Bronze Top, Bottom and Inside Work, Armored Steel Shell, 24 Keyed	7 50
829—	2 in., Wrought Steel, Brass Plated, 4 Brass Levers, Brass Bolts, 24 Keyed	7 00
829C—	2 in., with Chain, otherwise same as No. 829	7 50

Cast Bronze Padlocks



Solid Cast Bronze, Spring Shackle, 2 Secure Levers, Bronze Key, 3 changes in a Dozen.

No.		Per Doz.
2945—	1 inch, 12 Keyed	$2.30

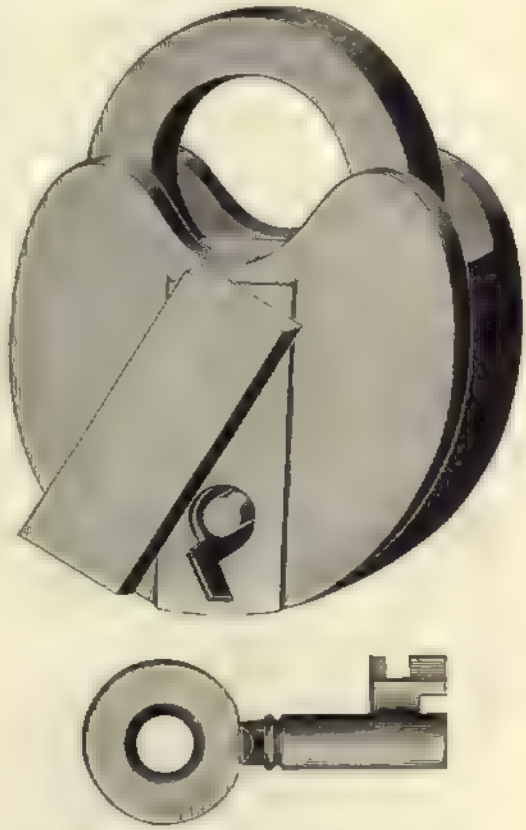
One Doz. in a Box

Wilson Bohannan

Cast Bronze Metal, Spring Locks

No		Per Doz.
O—	¾ inch	$2 75
A—	1 inch	3.80
70—	1⅛ inch	4 30
72—	1½ inch	7.25

One Doz. in a Box



With Galvanized Chain

Solid Cast Bronze, Heavy Spring Shackle, 2 Secure Levers, 1 Ward, Bronze Key, Chain 9 in. long.

No.		Per Doz.
0963¼C—	2½ inch, 24 Keyed, Keyed Alike	$12.30

One-Half Doz. in a Box

Yale Standard Padlocks

Full Size No. 813

Showing style of Chain with Nos. 813½ and 823½ Padlocks

Showing style of Chain with Nos. 833½ to 863½ Padlocks

Full Size, No. 853

Made wholly of Bronze Metal; the Shackle is Drop Forged to improve its strength, Action is Automatic both in Locking and Unlocking, and the Shackle Hole is protected by a stopper against the entrance of dirt when the Lock is open; highest grade Workmanship, Material and Finish.

Keys Two Fluted, Nickel Bronze, Corned, Gold Plated Bows, Case and Shackle Fine Wheel Finish.

Without Chain

No.		Per Doz.
813—1	in., 3 Tumblers, 48 Changes	$20 00
823—1¼	in., 3 Tumblers, 48 Changes	22 00
833—1½	in., 3 Tumblers, 48 Changes	25 00
843—1¾	in., 4 Tumblers, 72 Changes	28 05
853—2	in., 4 Tumblers, 144 Changes	31 00
863—2¼	in., 4 Tumblers, 144 Changes	38 50
873—2½	in., 4 Tumblers, 144 Changes	57 05
893—3	in., 4 Tumblers, 144 Changes	89 30

Nos. 813 to 873 One-Half Doz., 893 One-Quarter Doz. in a Box

With Chain

No.		Per Doz.
813½—1	in., 3 Tumblers, 48 Changes	$22 40
823½—1¼	in., 3 Tumblers, 48 Changes	24 40
833½—1½	in., 3 Tumblers, 48 Changes	29.20
843½—1¾	in., 4 Tumblers, 72 Changes	32 25
853½—2	in., 4 Tumblers, 144 Changes	35 20
863½—2¼	in., 4 Tumblers, 144 Changes	42.70

One-Quarter Doz. in a Box

Cast Bronze, Steel Shackle, 5 Pin Tumblers, 2 Paracentric Keys, Changes unlimited.

No.		Per Doz.
830—1½	inch	$28 80
840—1¾	inch	35.75
850—2	inch	43.70

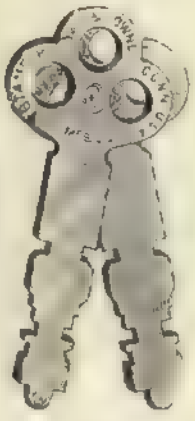
Each in a Paper Box, 6 Boxes in a Carton

Wrought Brass Case, Nickel Plated Steel Shackle, 2 Corrugated Keys.

No.		Per Doz
743V—1½	in., 3 Tumblers, 36 Changes	$23.85
743V—1½	in., 3 Tumblers, Keys Alike	23.85
745V—2	in., 3 Tumblers, 36 Changes	25 80

One-Half Doz. in a Box

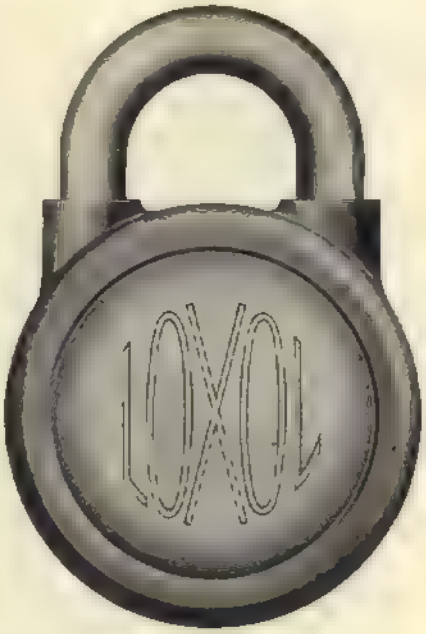
Yale Padlocks



Cast Iron Case, Brass Plated and Oxidized, Inside Parts Brass, Steel Shackles Brass Plated, Discs, Steel Lubian Black Finish, 2 Flat Steel N. P. Keys.

No.		Per Doz.
526—	2¼ in., 4 Tumblers, 144 Changes	$19 85

One-Half Doz. in a Box



Cast Iron Case, Nubian Finish, Inside Parts Steel, Copper Plated Steel Shackle, Discs, Steel, Copper Plated, 2 Flat Steel N. P. Keys.

No.		Per Doz.
326—	2¼ in., Warded, 6 Changes	$11 95

Cast Iron Case, Bower Barffed, Bronze Shackle, Buffed, 4 Pin Tumblers, 2 Flat Steel N. P. Keys.

No.		Per Doz.
803F	1½ in., 144 Changes	$17 90
805F	2 in., 144 Changes	17 90

One-Half Doz. in a Box

Steel Case and Shackle, Bower Barffed, 4 Lever Tumblers, 144 Changes, 2 Corrugated Steel N. P. Keys.

No.		Per Doz.
8454	Without Chain.	$20 85
8454½	—With 9 in. Chain	23 85

Yale Padlocks

Seamless Steel Case, Bower Barffed, Nickel Plated Steel Shackle, 2 Flat Steel N. P. Keys, Three Lever Tumblers.

No.		Per Doz.
563	—1½ in., 48 Changes	$11.35
565	—2 in., 48 Changes	13.90

One-Half Doz. in a Box

Cast Iron Case, Bower Barffed, Wrought Steel Panels Brass Plated, Shackle, Steel Brass Plated, 2 Flat N. P. Steel Keys, Warded.

No.		Per Doz.
225	—2 in., 6 Changes	$7.95

Wrought Steel and Wrought Brass Cases, 2 Flat Steel, N. P. Keys, 3 Lever Tumblers, 12 Changes.

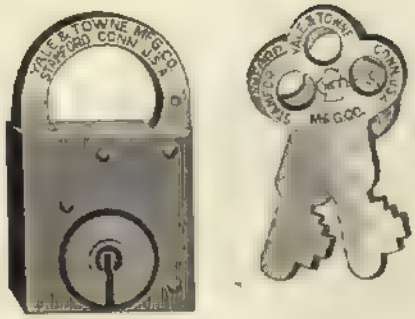
No.		Per Doz.
645J	—2 in. Wrought Steel Case, Ivory Black Finish, Steel Shackle, Brass Plated	$4.80
645J	—2 in., Keyed Alike, as above	4.80
645V	—2 in., Wrought Brass Case, Buffed, Brass Shackle	8.85

One-Half Doz. in a Box

Wrought Steel Case, Malleable Iron Brass Plated Shackles, Two Flat Steel Nickel Plated Keys, 6 Changes.

No.		Per Doz
453J	—1½ in., Ivory Black Case	$2 60
453X	—1½ in., Brass Plated Case	2 60
455J	—2 in., Ivory Black Case	3.80
455X	—2 in., Brass Plated Case	3.80

Padlocks



Wrought Steel and Wrought Brass, Two Lever Tumblers, Two Flat Steel Nickel Plated Keys.

No.		Per Doz.
671J	1 in., Steel Case, Ivory Black Finish, Nickel Plated Steel Shackle	$3.20
671V	—1 in., Brass Case and Shackle, Dipped Bright	4.40

One-Half Doz. in a Box

Wrought Steel, Two Lever Tumblers, Two Flat Steel Nickel Plated Keys.

No.		Per Doz
674J	—$1\frac{3}{4}$ in., Steel Case, Ivory Black Finish, Brass Plated Steel Shackle	$3.00

One-Half Doz. in a Box

Wrought Brass Case, Nickel Plated Steel Shackle, Two Half Corrugated Nickel Plated Steel Keys, Six Lever Tumblers, 12 Changes.

No		Per Doz.
605V	—2 in., Brass Case, Dipped Bright	$11 95

Cast Bronze Case and Shackle, Two Nickel Plated Flat Steel Keys, Three Lever Tumblers, 12 Changes

No.		Per Doz.
585	—2 in., Bronze Case. Fine Wheel Finish, Buffed	$13 90

Padlocks

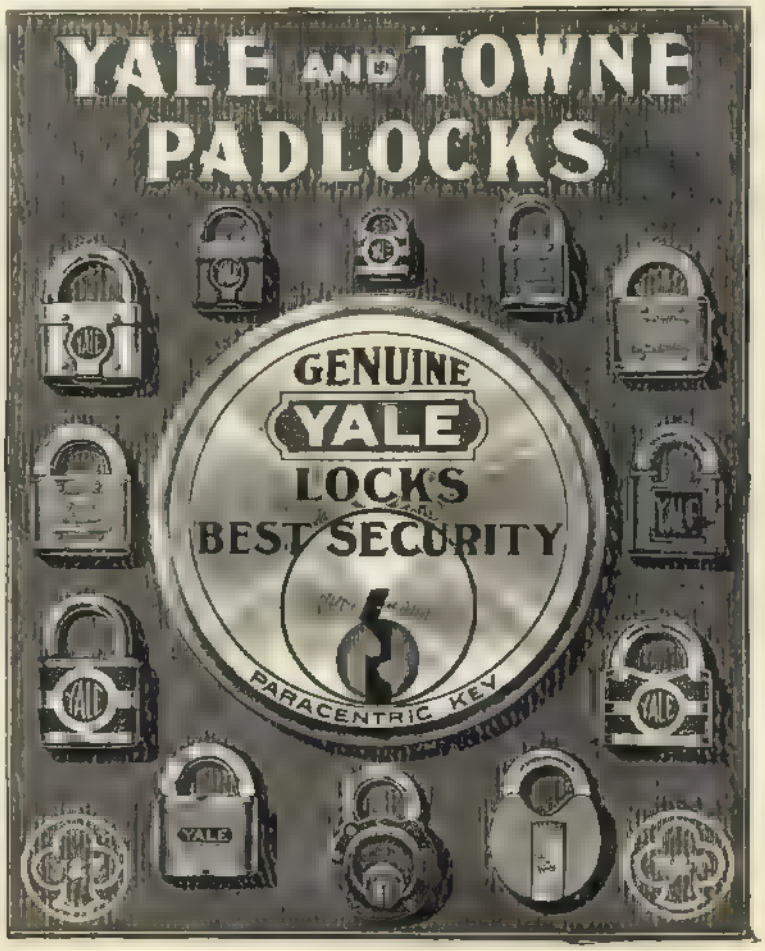
Wrought Steel Case, Ivory Black Finish, Steel Shackle, Nickel Plated, 2 Lever Tumblers, 2 Flat Steel N. P. Keys.

No.		Per Doz.
615S	—2 in., 12 Changes	$6.35

One Half Doz. in a Box

Wrought Steel Case, Ivory Black Finish, Nickel Plated, Steel Shackle, 2 Corrugated N. P. Steel Keys, Warded.

No.		Per Doz.
115	—2 in., 6 Changes	$5.00



Yale & Towne Padlock Assortment—An assortment of 12 Best Selling Locks, as follows: 813, 563, 8454V, 805F, 853, 625, 645J, 735, 850, 8454, 745V and 743S, Mounted on a Handsome Display Card 19×15 Inches — Per Card $23 70

Padlock Assortment

Yale & Towne

No. 10—Yale Sample Board with Assortment of Stock (as below) — Each $57 00

Assortment of Padlocks

1/6 Doz	No. 840	1/4 Doz	No. 585	1/2 Doz....	No. 225	1/2 Doz	No. 115
1/6 Doz	No. 843	1/4 Doz	No. 605V	1/2 Doz	No 615S	1/2 Doz	No. 671V
1/6 Doz	No 8454	1/2 Doz	No. 326	1/2 Doz	No. 453J	1/2 Doz	No. 674N
1/4 Doz	No. 805F	1/4 Doz	No. 563	1/2 Doz	No. 645C	1/2 Doz	No 9645J

Above set is Listed Complete with six dozen padlocks, sufficient for 1e to display and stock a l good se lers together with an attract ve be ard for display ready for hang ng

Padlock Assortments

No. H Assortment. Per Card $1.80

No. L—Assortment. . . . . Per Card $3 20

No. R—Assortment. . . . . Per Card $1 40

No. U—Assortment . . . . . Per Card $2 40

All above Assortments One Doz. on a Card, 2 Cards in a Box

Laib Co.
1040
Louisville Ky

BLACKSMITHS' POST DRILLS.

SELF FEED.

FIG. 2898.
No. 1.
BALL BEARING, SELF FEED.

BALL BEARING, SELF FEED.

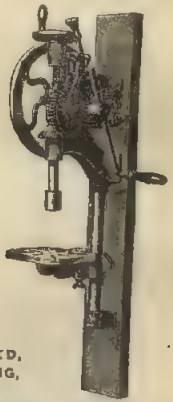


FIG. 2899.
No. 2.

FIG. 2900.
No. 3.

THREE GEARED,
BALL BEARING,
SELF FEED.

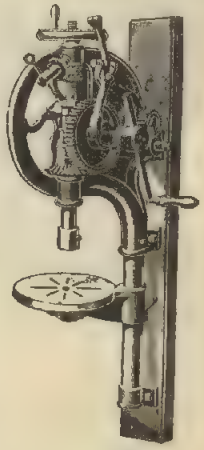


FIG. 2901.
No. 4.

Number.	Takes Straight Drill Shanks, Inches.	Size Holes Will Drill, Inches.	Drills to Center of Circle, Inches	Weight, Pounds.	Price Hand, Each.	Price For Power, Each.
1	$\frac{1}{8}$–$\frac{5}{8}$ $\frac{4}{64}$–$\frac{1}{64}$	$\frac{1}{64}$ to 1	14	95	8.00	11.00
2	$\frac{1}{2}$–$\frac{5}{8}$ $\frac{4}{64}$–$\frac{1}{64}$	$\frac{1}{64}$ to 1$\frac{1}{4}$	16	130	12.50	15.50
3	$\frac{1}{2}$–$\frac{4}{64}$	0 to 1$\frac{1}{2}$	18	215	24.00	28.00
4	$\frac{1}{2}$–$\frac{5}{8}$–$\frac{4}{64}$–$\frac{1}{64}$	$\frac{1}{64}$ to 1$\frac{1}{2}$	20	240	25.00	29.00

Laib Co.
1041
Louisville Ky.

BLACKSMITHS' POST DRILLS.

FAST AND SLOW FEED.

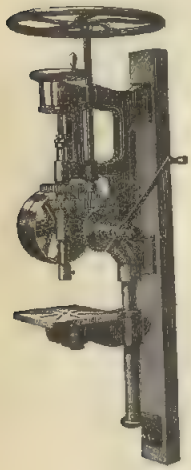


FIG. 2902.
No. 5.

AUTOMATIC SELF FEED.

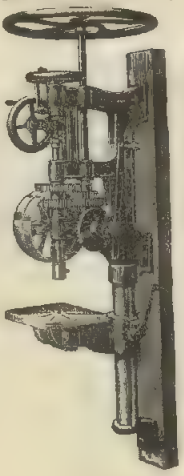


FIG. 2904.
No. 7.

FAST AND SLOW SELF FEED.

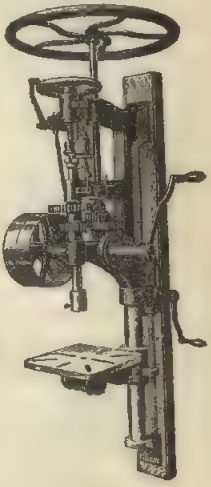


FIG. 2903.
No. 6.

Number.	Takes Straight Drill Shanks, Inches.	Size Holes Will Drill Inches.	Drills to Center of Circle, Inches.	Size Pulley, Inches.	Weight, Pounds.	Price, Hand, Each.	Price, For Power, Each.
5	$\frac{1}{2}$–$\frac{1}{16}$	0 to $1\frac{1}{2}$	21	$10\frac{3}{4}$x$2\frac{1}{2}$	300	33.50	37.50
6	$\frac{1}{2}$–$\frac{1}{16}$	0 to $1\frac{1}{2}$	21	$10\frac{3}{4}$x$2\frac{1}{2}$	315	38.50	42.50
7	$\frac{1}{2}$–$\frac{1}{64}$	0 to $1\frac{1}{2}$	21	10 x$2\frac{1}{2}$	325	40.00	44.00

BLACKSMITHS' TOOLS.

TOP SWAGE.

FIG. 2927.
No. 1190.

BOTTOM SWAGE.

FIG. 2928.
No. 1200.

TOP FULLER.

FIG. 2929.
No. 1210.

BOTTOM FULLER.

FIG. 2930.
No. 1220.

Number	1190	1200	1210	1220
Size.....inches	$\frac{1}{4}$ to $4\frac{1}{2}$	$\frac{1}{4}$ to $4\frac{1}{2}$	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{4}$ to $2\frac{1}{2}$
Price.....per pound	.42	.42	.42	.42

SQUARE FLATTER.

FIG. 2931.
No. 1230.

ROUND FLATTER.

FIG. 2932.
No. 1240.

SET HAMMER.

FIG. 2933.
No. 1250.

HARDIE.

FIG. 2934.
No. 1310.

Number	1230	1240	1250	1310
Size.....inches	1 to $4\frac{1}{2}$	1 to $4\frac{1}{2}$	1 to $2\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{8}$
Price.....per pound	.42	.42	.42	.42

SQUARE PUNCH.

FIG. 2935.
No. 1260.

ROUND PUNCH.

FIG. 2936.
No. 1270.

BACKING OUT PUNCH.

FIG. 2937.
No. 1321.

SIDE CHISEL.

FIG. 2938.
No. 1320.

Number	1260	1270	1321	1320
Size.....inches	$\frac{3}{8}$ to 1	$\frac{3}{8}$ to 1	Weight About $2\frac{1}{2}$ lbs	Weight About $4\frac{1}{2}$ lbs
Price.....per pound	.42	.42	.80	80

Laib Co.
1055
Louisville Ky.

BLACKSMITHS' TOOLS.

COLD CHISEL.

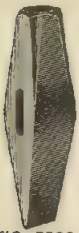


FIG. 2939.
No. 1290.

HOT CHISEL.

FIG. 2940.
No. 1300.

HEADING TOOL.

FIG. 2941.
No. 1280.

Number	1290	1300	1280
Size.....inches	1¼, 1⅝ and 1½	1¼, 1⅝ and 1½	½ to 1
Price.....per pound	.42	.42	.42

Sledges.

CROSS PEIN.

FIG. 2942.
No. 830.

STRAIGHT PEIN.

FIG. 2943.
No. 840.

DOUBLE FACE.

FIG. 2944.
No. 850.

HORSE SHOERS' TURNING

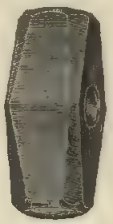


FIG. 2945.
No. 870.

Number	830		840		850	870
Weight.....pounds	5 and over	3 to 5	5 and over	3 to 5	5 and over	6 to 10
Price.....per pound	.30	.40	.30	.40	.30	.30

FIG. 2946. **No. 1060.**

Button or Rivet Sets.

Number	1060	
Weight.....pounds	3 to 5	5 and over
Price.....per pound	.75	.70

BLACKSMITHS' TOOLS.

DRIFT PIN.

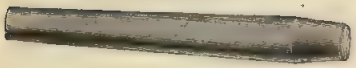


FIG. 2947.

HAND PUNCH.

FIG. 2948.

Drift Pins.

Size.....inches	$\frac{3}{8}$ to 1
Price.....each,	.80

Hand Punches.

Size of Steel.....inches	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length.....inches	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$8\frac{1}{4}$	$8\frac{3}{4}$	$9\frac{1}{2}$
Point.....inches	$\frac{1}{32}$	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$
Price.....per dozen	.85	1.55	2.65	3.80	5.70	8.00

FARRIERS' PINCERS.

FIG. 2949.

FARRIERS' KNIVES.

FIG. 2950.

Farriers' Pincers, Knives, &c.

Price, Farriers' Pincers, 14 inches long.....per dozen	12.00
Price, Farriers' Hoof Parers, 14 inches long.....per dozen	28.00
Price, Farriers' Knives.....per dozen	6.00
Price, Farriers' Buttresses.....per dozen	15.00
Price, Farriers' Sole Knives.....per dozen	6.00

BLACKSMITHS' SHEEP SKIN APRONS.

FIG. 2951.

Number	1	2	3	4
Size.....inches	24x30	26x34	28x38	30x42
Price.....per dozen	20.00	23.00	26.00	30.00

Laib Co.
1057
Louisville Ky.

BLACKSMITHS' TOOLS.

Drop Forged Steel Blacksmiths' Tongs.

COMMON TONGS.

FIG. 2952.

V TONGS.

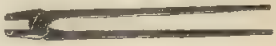


FIG. 2953.

Common Tongs.

Size.....inches	0, ¼ and ⅜		½			⅝		¾		⅝ and ¾	
Length.....inches	14	18	16	20	24	18	20	24	18	24	28
Price.....per dozen	7.50	8.00	8.50	9.50	10.00	9.00	9.50	10.00	9.50	11.00	13.00

Size.....inches	⅞ and 1			1¼ and 1½		1⅝ and 1½	
Length.....inches	20	24	30	24	30	24	30
Price.....per dozen	12.00	13.00	15.00	15.00	17.00	16.00	18.00

V Tongs.

Size.....inches	¼, 5/16 and ⅜		7/16 and ½		⅝		¾		⅞	
Length.....inches	16	20	18	24	20	24	20	24	20	24
Price.....each	.75	.85	.85	.95	.95	1.05	1.05	1.15	1.15	1.25

Size.....inches	1		1¼		1½		1⅝		1½	
Length.....inches	20	24	24	30	24	30	24	30	24	30
Price.....each	1.25	1.35	1.50	1.65	1.65	1.80	1.80	1.95	1.95	2.10

LATHE TOOL TONGS.

FIG. 2954.

BOLT HEADING AND HEATING TONGS.

FIG. 2955.

Lathe Tool Tongs.

Size.....inches	¾ x ⅝	1 x ½	1¼ x ⅝	1½ x ¾
Length.....inches	18	20	22	22
Price.....each	1.00	1.25	1.50	1.75

Bolt Heading and Heating Tongs.

Size.....inches	¼, 5/16, ⅜, 7/16, ½		
Price, Handles 14 inches, Jaws 4 inches.....each	.75	Price, Handles 20 inches, Jaws 4 inches.....each	.90

PICK UP TONGS.

FIG. 2956.

HORSE SHOE TONGS.

FIG. 2957.

Pick Up Tongs.

Number.....	1	2
Price.....each	1.00	1.25

Horse Shoe Tongs, Light or Heavy.

Price, 12, 14, 16, 18 inches.....per dozen	6.00

Laib Co. 1058 Louisville Ky.

Blacksmiths' Tongs.

STRAIGHT LIP TONGS.

FIG. 2958.

CURVED LIP, FLUTED JAW TONGS.

FIG. 2959.

Straight Lip Tongs.

Length.....inches	14	16	18	20	22	24	26	28	30
Weight.....per dozen pounds	27	29	31	34	36	39	42	45	49
Price.....per dozen	5.20	5.60	6.00	6.80	7.60	8.40	9.20	10.00	10 80

Curved Lip, Fluted Jaw Tongs.

Length.....inches	14	16	18	20	22	24	26	28	30
Price.....per dozen	7.50	8.50	9.50	10.50	12.00	13.50	15.00	17.00	19.00

Double and Single Pick Up and Rivet Tongs.

Price, Double Pick Up Tongs	per pound	.40
Price, Single Pick Up Tongs	per pound	.40
Price, Rivet Tongs	per pound	.60

Weights of Curved Lip Fluted Jaw and Double and Single Pick Up and Rivet Tongs same as Straight Lip Tongs.

SWAGE BLOCKS.

FIG. 2960.

Number	1	2	3	4	5	6	7
Size.....inches	12¼x12½x4	13¼x13½x4	15x15x4	16x16x4	18x18x4½	19½x19½x4½	24x24x6
Price.....each	6.00	7.50	9.00	12.00	15.00	18.00	36.00

Laib & Co.
1059
Louisville Ky.

BLACKSMITH MANDRELS AND TUYERE IRONS.

FIG. 2961.

Blacksmiths' Mandrels.
12 Inch Base; 4 Feet Long.

Price.....each	8.00

DUCK NEST TUYERE IRONS.

FIG. 2962.
No. 0.

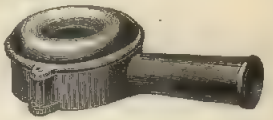


FIG. 2963.
No. 1.

	0	1
Number.....		
Price.....each	1.50	2.00

WATER.

FIG. 2964.

GOOSE NEST.

FIG. 2965.

Goose Nest and Water Tuyere Irons.

Number.....	40	45	.....
Length.....inches	16	22	.....
Size of Nozzle.....inches	1	1½	.....
Price, Water Tuyere Irons.....each	4.50	6.00	.....
Price, Goose Nest Tuyere Irons.....each	.....	.....	3.75

Laib Co. 1060 Louisville Ky.

BELLOWS AND ANVILS.

HAND BELLOWS.

FIG. 2966.

MOULDERS' BELLOWS.

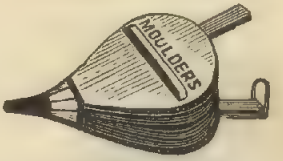


FIG. 2967.

Hand and Moulders Bellows.

Size.....inches	6	7	8	9	10	12	14	36
Price, Hand...per dozen	8.00	9.00	10.00	.....	12.00	.....	.....	.....
Price, Moulders', per dozen	.....	.....	.....	17.00	20.00	27.00	33.00	40.00

BLACKSMITHS' BELLOWS.

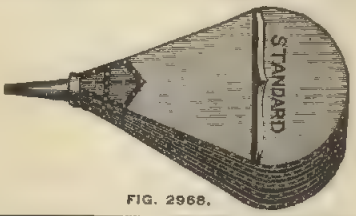


FIG. 2968.

Size.....inches	24	26	28	30	32	34	36
Price, Standard.. .....each	10.00	11.00	12.00	13.00	14.00	16.00	18.00
Price, Extra Long . .....each	12.00	13.00	14.00	15.00	17.00	19.00	21 00
Size.....inches	38	40	42	44	46	48	50
Price, Standard.....each	20.00	23.00	27.00	32.00	.....	.....	.....
Price, Extra Long..... each	24.00	28.00	34.00	40.00	45.00	50.00	60.00

Extra Long 38 to 50 inches, with 2 inch Pipe connection, same list as Extra Long.

ANVILS.

FIG. 2969.

Face.....inches	3½ x 12	3½ x 13½	3¾ x 15	4 x 15½	4 x 16	4¼ x 16¼
Weight.....pounds	80 to 90	100 to 110	125 to 135	140 to 145	150 to 160	170 to 180
Face.....inches	4¼ x 17	4½ x 18	5 x 20	5½ x 22	6 x 24	.....
Weight.....pounds	190 to 200	250	300	350	400	.....

Advances on Anvils Under 80 Pounds; 80 to 400 Pounds Base.

Weight.....pounds	70 to 79	60 to 69	50 to 59	40 to 49	30 to 39	20 to 29	10 to 19	Clip Horn
Price, Extra...per pound	½	.01	.02	.03	.05	.08	.15	.01

SCREW AND LEVER PUNCHES.

SCREW PUNCH.

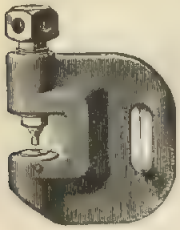


FIG. 2970.

HYDRAULIC SCREW PUNCH.

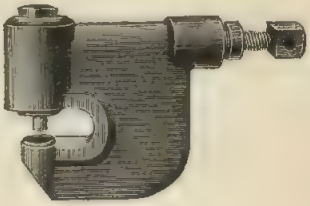


FIG. 2971.

Screw Punches.

Number	A	B	C	D	E	F	G
Hole will Punch.....inches	$\frac{5}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Thickness of Iron.....inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$
Distance from Edge.....inches	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{2}$	4
Weight.....pounds	15	17	27	40	60	90	110
Price.....each	20.00	24.00	30.00	40.00	60.00	75.00	80.00

Hydraulic Screw Punches.

Number	1	2	3	4
Hole will Punch.....inches	$\frac{11}{16}$	$\frac{13}{16}$	$\frac{15}{16}$	$\frac{15}{16}$
Thickness of Iron.....inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Depth of Jaw.....inches	2	$2\frac{1}{2}$	$3\frac{1}{2}$	4
Weight.....pounds	32	60	90	140
Price.....each	64.00	90.00	110.00	140.00

LEVER PUNCHES.

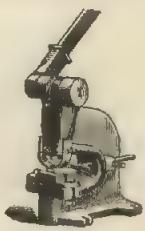


FIG. 2972.

No. 12.

Number	11	12	13	14
Throat.....inches	4	6	10	15
Weight.....pounds	105	115	150	240
Price.....each	12.50	15.00	20.00	25.00

Three Punches and Dies, $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ inch included in above price.

Laib Co.
1062
Louisville Ky.

LEVER PUNCHES AND SHEARS.

LEVER PUNCH, WITH RATCHET

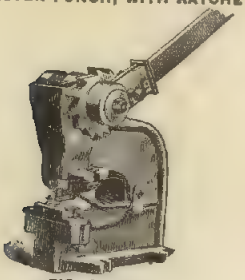


FIG. 2973.
No. 22.

LEVER SHEARS.

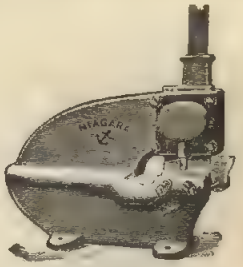


FIG. 2974.
Nos. 13 and 14.

Lever Punches, with Ratchet.

Number	21	22	23	24
Throat ..... inches	4	6	10	15
Weight ..... pounds	150	210	375	550
Price ..... each	20.00	24.00	32.00	40.00

Lever Shears.

Number	13	11	15
Plate Iron Will Cut ..... inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{4}$
Length of Knives ..... inches	$4\frac{1}{2}$	5	6
Weight ..... pounds	200	400	800
Price ..... each	25.00	40.00	90.00

Number 15 can be operated with Lever direct, Ratchet and Pawl or Compound Lever.
Iron Legs for Numbers 13 and 14, 5.00; for Number 15, 10.00.

COMBINED SHEARS AND PUNCH.

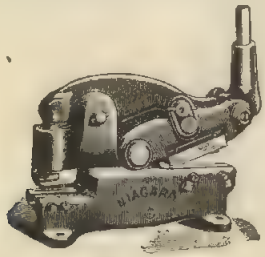


FIG. 2975.

Number	1	2	3
Hole Will Punch ..... inches	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
Iron Will Cut ..... inches	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
Size of Punches ..... inches	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$
Thickness of Iron will punch ... inches	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
Cutting Length ..... inches	4	5	$8\frac{1}{2}$
Throat ..... inches	$2\frac{3}{4}$	$3\frac{1}{2}$	5
Weight ..... pounds	100	115	235
Price ..... each	16.00	20.00	35.00

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Louisville Ky

IRON SHEARS.

PLATE AND ROD SHEARS.

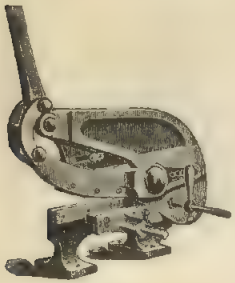


FIG. 2976.

ROUND AND SQUARE IRON SHEARS

FIG. 2977.

Plate and Rod Shears.

Number	1	2	3
Will Cut Plate Iron up to ..... inches	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$
Will Cut Flat Iron up to ..... inches	$\frac{1}{4}$ x 3	$\frac{3}{16}$ x 3	$\frac{3}{8}$ x 3
Will Cut Round Iron ..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
Length of Knives ..... inches	10	10	10
Weight ..... pounds	160	210	315
Price ..... each	32.00	38.00	45.00

Iron Legs, extra, 5.00.

Round Iron Shears.

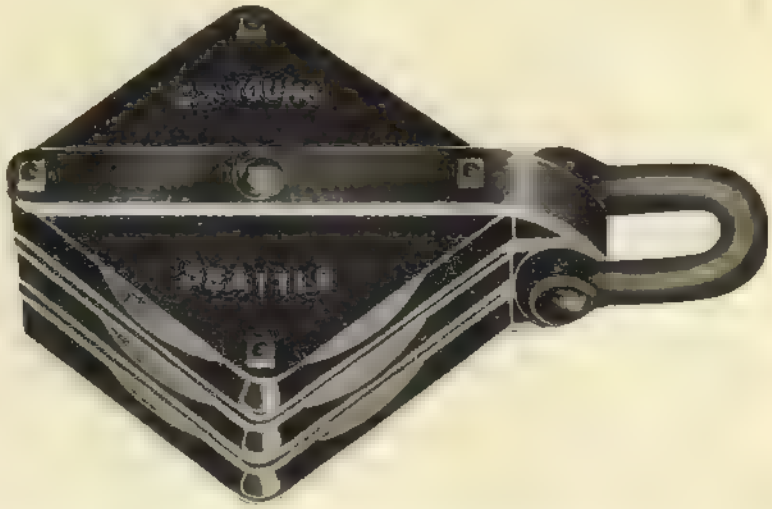
Number	0	1	2	3	4	5	6	7	8
Capacity ...inches	$\frac{1}{4}$ and Smaller	$\frac{5}{16}$, $\frac{1}{4}$, $\frac{3}{16}$	$\frac{3}{8}$, $\frac{5}{16}$, $\frac{1}{4}$	$\frac{1}{2}$, $\frac{3}{8}$, $\frac{5}{16}$	$\frac{5}{8}$, $\frac{1}{2}$, $\frac{3}{8}$	$\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$	$\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$	1, $\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$	$1\frac{1}{8}$, 1, $\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$
Weight....pounds	4	15	21	26	42	94	135	225	284
Price ..... each	6.00	10 00	14.00	18 00	23.00	35.00	48.00	60.00	80.00

Square Iron Shears.

Number	1	2	3	4	5	6	7	8
Capacity... ..... inches	$\frac{1}{4}$ and Smaller	$\frac{5}{16}$, $\frac{1}{4}$	$\frac{3}{8}$, $\frac{5}{16}$, $\frac{1}{4}$	$\frac{1}{2}$, $\frac{3}{8}$, $\frac{5}{16}$	$\frac{5}{8}$, $\frac{1}{2}$, $\frac{3}{8}$	$\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$	$\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$	1, $\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{2}$
Weight.....pounds	15	21	26	42	94	135	225	284
Price ..... each	11.00	15.00	20 00	25.00	38.00	52.00	65.00	85 00

Steel Blocks

For Wire Rope



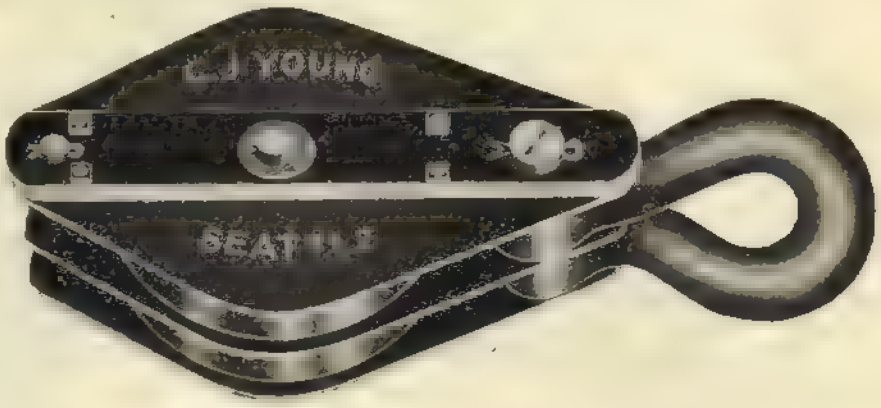
No. 1803

Youngs Extra Heavy Derrick Blocks, Self Lubricating Bushings

Diamond Frame with Shackle or Swivel Hooks

The Straps for these Blocks pass through the entire length of the shell, giving thorough re-inforcement and improved pin bearing. This construction does not allow of axle pins bending, as formation gives perfect bearing bed.

Size Sheaves, Inches	For Wire Rope, Inches	No. 1801, Single	No. 1802, Double	No. 1803, Triple	No. 1804, Quadruple
10×1¾×1	½ and ⅝	$17.00	$26 00	$37.00	$49 00
12×1¾×1	⅝ and ¾	19.00	29 00	41.00	55 00
14×1¾×1¼	¾ and ⅞	21 00	31 00	45.00	61 00
16×2¼×1¼	⅞	36 00	50 00	72.00	96 00
18×2¼×1½	1	40.00	56.00	78.00	104.00



No. 1702

Youngs Special Extra Heavy Blocks, Self Lubricating Bushings

Special Extra Heavy Wire Rope Sheave used in these Blocks. The best type of Block for general heavy work; made of the best material and workmanship.

Size Sheaves, Inches	For Wire Rope, Inches	No. 1701, Single	No. 1702, Double	No. 1703, Triple	No. 1704 Quadruple
16×2¼×1½	⅞	$44.00	$69.00	$90.00	$110 00
18×2¼×1½	⅞ or 1	56.00	85.00	110.00	134.00
20×2½×2	⅞ or 1	76.00	110.00	151.00	187.00
22×2½×2	⅞ or 1	85.00	122.00	165.00	205.00
24×3 ×2½	1 or 1⅛	105 00	150 00	200.00	246.00

Lumbering Tools

BLOCKS

This Block is constructed for Extra Heavy Work. Has cast steel sides with extra heavy wide throat, which allows Butt Chain and Hook to pass through easily

The Sheave is of Young's Special Process Semi-Steel or White Metal, Brass Bushed with inclined face, causing Cable to lead fair to center groove. The sheave permits of severe service without possibility of splitting or chipping. Shackle, Shackle Pin and Axle Pin are all of best Tool Steel, Hand Forged, with Steel Oil Cups.

Youngs

Butt Chain Lead Blocks

No.		Each
14	—Sheave 6×14×2½ in., Diam. Pin 2½ in., Weight each 286 lbs	$45 00
16	—Sheave 8×16×2½ in., Diam. Pin 2½ in., Weight each 455 lbs	75 00

Nos. 100 to 140

This Block is built on the latest model, and is particularly designed for long, continuous high speed service. Is so built that it picks up easily and quickly.

Nos. 160 and 180 are built with skeleton frame, permitting of very light weight considering diameter of sheaves.

Adapted to Wire Rope ½ to 1 inch

Nos. 160 and 180

Youngs

Head Line Blocks

Cast Steel Shell, thoroughly re-inforced; has Young's Special Process Semi-Steel or White Metal Plain Bushed Sheaves and Extra Tool Steel Axle Pin

Nos	100	120	140	160	180
Size Sheave, Inches (Bronze Bushed)	10	12	14	16	18
Weight each, Pounds	68	88	102	118	148
Each	$15 60	18.60	21.60	27.60	33.00
Extra Pins, Each	4.50	4.50	4.50	4.50	4.50

Lumbering Tools

BLOCKS

Youngs Steel Donkey Blocks

Cast Steel Shell, Double Hinge, with Rib re-inforcement. Hand Forged Tool Steel Bull Hook, Deep Socket Swivel Eye, Young's Special Process Semi-Steel Sheave, Tool Steel Axle Pin, Steel Oil Cups.

Nos.	8	10	12
Sheave, Inches	2¼×8	2¼×10	2¼×12
Diam. Pin, Inches	2½	2½	2½
Weight Each, Pounds	95	120	150
Bronze Bushed, Each	$21.00	24 00	30 00
Plain Bushed, Each	19.50	23 10	28 50
Extra Axle Pins, Each	4 50	4 50	4 50

Youngs Side Yarding or Donkey Blocks

Opens away from the strained Rope, which does away with the high lift of Cable. Cast Steel Shell, Hand Forged Tool Steel Bull Hook; the Swivel and Yoke are of Machine Steel 25% Carbon; side of shell is hinged onto Yoke with 1-inch Tool Steel Pin, which acts as hinge; Locking Pin is also of 1-inch Tool Steel. Has Young's Special Process Semi-Steel Sheave, Bronze Bushed; Tool Steel Pin, Steel Oil Cups.

Nos	8-A	10-A	12-A
Sheave, Inches	2¼×8	2¼×10	2¼×12
Diam. Pin, Inches	2½	2½	2½
Weight Each, Pounds	100	125	155
Each	$22 80	27 40	34 20
Extra Axle Pins, Each	4 50	4 50	4 50

Youngs Return Line Shackle Blocks

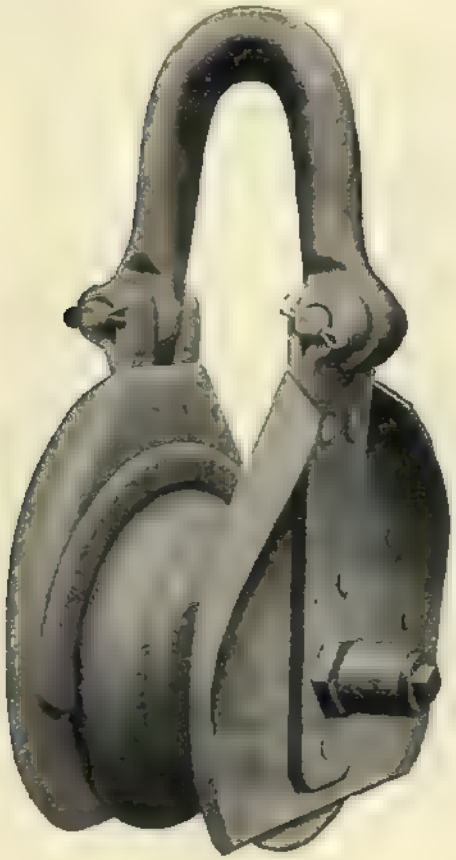
Extra Quality Cast Steel Shell Thorough Rib re-inforcement. Machine Steel Shackle and Pin. Sheave is Young's Special Process Semi-Steel, Bronze Bushed. 1½ in. Tool Steel Axle Pin with Oil Cups.

Nos	61	81	91
Sheave, Inches	6×1¼	8×1¼	9×1¼
Diam. Pin, Inches	1½	1½	1½
Weight Each, Pounds	18	29	34
Each	$6 00	8 40	9 60
Extra Axle Pins, Each	3 00	3 00	3.00

Adapted to Wire Rope up to ⅝ in. Diam.

Lumbering Tools

YOUNGS LOGGING BLOCKS



Butt Chain Blocks

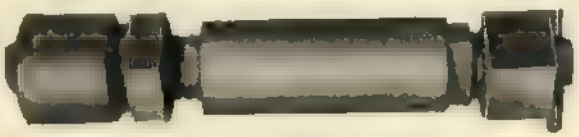
White Metal, Brass Bushed Sheave, Heavy Boiler Steel Plate Shell. Extra Heavy Machine Steel Shackle and Straps. Steel Pin with Internal Lubrication.

No.	814	816
Sheave, Inches	14×6	16×8
Shell, Inches	21	23
Diameter Pin, Inches	2½	2½
Weight, Each, Pounds	260	450
Each	$39.75	60.75

Donkey Blocks

White Metal, Plain Bushed Sheave, Heavy Boiler Plate Steel Shell, Heavy Machine Steel Straps, Swivel, Hook and Link. Adapted to Wire Rope ¾ to 1½ in.

No.	808	810	812
Sheave, Inches	8×2	10×2	12×2
Shell, Inches	14	16	18
Diameter Pin, Inches	1½	1½	1½
Weight, Each, Pounds	76	98	117
Each	$18 75	19 90	24 00



Extra Pins for Butt Chain Blocks

No.	14 and 814	16 and 816
Diameter, Inches	2½	2½
Each	$4.50	5.25

Extra Pins for Donkey Blocks

No.	808 to 812
Diameter, Inches	1½
Each	$1.90

Lumbering Tools

YOUNGS LOGGING BLOCKS

Head Line Blocks

Adapted to Wire Rope $\frac{1}{2}$ to 1 in. has White Metal Plain Bushed Sheave Heavy Boiler Plate Steel Shell, Heavy Machine Steel Shackle and Straps, Steel Pin with Oil Cups.

No.	710	712	714	716	718
Sheave, Inches	10×1½	12×1½	14×1½	16×1½	18×1½
Shell, Inches	11	12	15	16	17½
Diameter Pin, Inches	1½	1½	1½	1½	1½
Weight, Each, Pounds	55	75	105	125	135
Each	$14.25	15.75	18.00	21.00	27.00

Extra Pins for Head Line Blocks, Nos. **710** to **718**, with Oil Cups, Weight, 3 lbs. Each — Each $4 00

Steel Snatch Blocks

White Metal Plain Bushed Sheave, Heavy Boiler Plate Steel Shell, Heavy Machine Steel Strap, Lock Hook, with Swivel Hook, Steel Pin.

No.	108	109	110	112
Sheave, Inches	4½×1½	5×1½	5½×1¾	6×1¾
Shell, Inches	8	9	10	12
For Wire Rope, Inches	⅝	⅝	¾	¾
Diameter Pin, Inches	¾	¾	1	1
Weight, Each, Pounds	14	16	21	25
Each	$7.50	8.25	9.00	11.25

Lumbering Tools

YOUNGS LOGGING BLOCKS

Return Line Shackle Blocks

Adapted to Wire Rope up to ⅝ in. Diameter, White Metal Plain Bushed Sheave, Heavy Boiler Plate Steel Shell, Heavy Machine Steel Shackle and Straps, Steel Pin

No.	861	881	891	8010
Sheave, Inches	6×1	8×1	9×1	10×1
Shell, Inches	8	10	11	12
Diameter Pin, Inches	1	1¼	1¼	1¼
Weight, Each, Pounds	14	25	29	35
Each	$5 25	6.75	7.50	9.00

Return Line Shackle Blocks, with Oil Cups

Adapted to Wire Rope up to ⅝ in. Diameter White Metal Plain Bushed Sheave, Heavy Boiler Plate Steel Shell Heavy Machine Steel Shackle and Straps, Steel Pin.

No.	C861	C881	C891	C8010
Sheave, Inches	6×1	8×1	9×1	10×1
Shell, Inches	8	10	11	12
Diameter Pin, Inches	1	1¼	1¼	1¼
Weight, Each, Pounds	15	26	30	36
Each	$5.75	7. 25	8.00	9.50

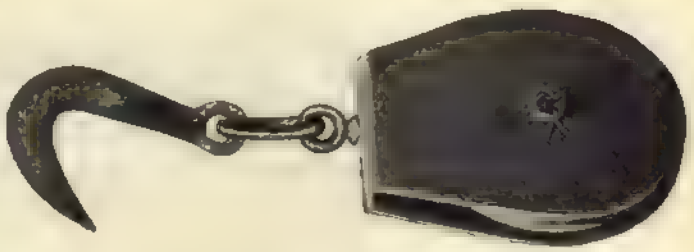
Lumbering Tools

YOUNGS LOGGING BLOCKS

Return Line Block, with Round Hook

Adapted to Wire Rope up to ⅝ in. Diameter, White Metal Plain Bushed Sheave, Heavy Boiler Plate one piece Steel Shell, Heavy Machine Steel Swivel, Hook and Link, Steel Pin.

No.	66	68	610
Sheave, Inches	6×1	8×1	10×1
Shell, Inches	7	9	11
Diameter Pin, Inches	1	1¼	1¼
Weight, Each, Pounds	14	25	35
Each	$4 20	5 40	6 75



Return Line Block, with Dog Hook

Adapted to Wire Rope up to ⅝ in. Diameter, White Metal Plain Bushed Sheave, Heavy Boiler Plate one piece Steel Shell, Heavy Tool Steel Swivel, Dog Hook and Link.

No.	76	78	710
Sheave, Inches	6×1	8×1	10×1
Shell, Inches	7	9	11
Diameter Pin, Inches	1	1¼	1¼
Weight, Each, Pounds	13	23	32
Each	$4 20	5 40	6 75

Team Blocks

Adapted to Wire Rope up to ¾ in. Diameter, White Metal Plain Bushed Sheave, Boiler Plate Steel Shell, Heavy Machine Steel Swivel, Hook and Link, Steel Pin.

No.	26	28
Sheave, Inches	6×1¾	8×1¾
Shell, Inches	11	13
Diameter Pin, Inches	1	1¼
Weight, Each, Pounds	31	40
Each	$12.00	15.00

Return Line Snatch Blocks

Adapted to Wire Rope up to ⅝ in. Diameter, White Metal Plain Bushed Sheave, Heavy Boiler Plate Steel Shell, Heavy Machine Steel Strap, Lock Hook, with Swivel Hook, Steel Pin.

No.	46	48
Sheave, Inches	6×1	8×1
Shell, Inches	10	13
Diameter Pin, Inches	1	1¼
Weight, Each, Pounds	15	18
Each	$6.00	9.75

Lumbering Tools

Main Line Swivels

Size, Inches	½	⅝	¾	⅞
Weight, Each, Pounds	2	2½	3	4
Each	$2.70	3.10	3.40	3.90
Size, Inches	1	1⅛	1¼	1½
Weight, Each, Pounds	5	8	12	18
Each	$4 15	4.50	5.65	6.40

Flexible Main Line Swivels

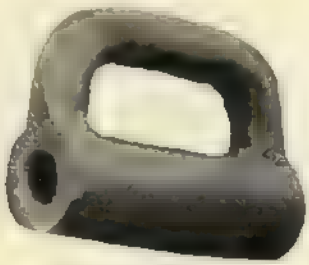
Size, Inches	¾	1
Weight, Each, Pounds	12	16
Each	$4.50	6 40

Main Line Swivel Hooks

Size, Inches	1⅛	1¼	1⅜	1½
Hook, Inches	2	2¼	2¼	2½
Each	$7.15	8.65	8.85	9.75

Return Line Swivel Hooks

Size, Inches	½	⅝	¾	⅞
Hook, Inches	1⅛	1¼	1½	1¾
Weight, Each, Pounds	4	5	9	14
Each	$4 05	4.60	5 05	6 15



Rope Travelers

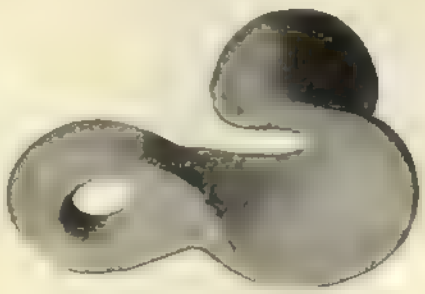
For Rope, Inches	⅞	1	1⅛
Weight, Each, Pounds	7	9	12
Each	$4 90	5 25	5.65

Swivel Choker Hooks

Size, Inches	⅞×3	1×3½	1¼×4
Weight, Each, Pounds	12	13	18
Each	$4.35	4.90	5.65

Choker Hooks, Plain Eye

Size, Inches	⅝×2	¾×2	⅞×2½	1×3
Weight, Each, Pounds	2½	2¾	3½	5½
Each	$1.20	1.35	1.50	1 75
Size, Inches	1⅛×3½	1¼×4	1½×5	
Weight, Each, Pounds	8	8⅛	17¾	
Each	$2 05	2 65	3 90	



Choker Hooks, Cross Eye

Size, Inches	⅞×2½	1×3
Weight, Each, Pounds	3½	5
Each	$1 75	2 05
Size, Inches	1¼×3¾	1¼×4
Weight, Each, Pounds	8¼	9
Each	$2 40	2 70

Lumbering Tools

Wire Rope Grips

For Wire Rope, Inches	½	⅝	¾
Weight, Each, Pounds	3	4	5
Each	$3.00	3.00	3.00

Splicing Needles

Length, Inches	10	12	14
Weight, Each, Pounds	1	2	3
Each	$1.50	1.90	2.65

Coupling Hooks

Size, Inches	½	⅝	¾
Weight, Each, Pounds	3/8	1/2	5/8
Each	$0.90	0.90	0.90

GRAB HOOKS

With Links and Ring

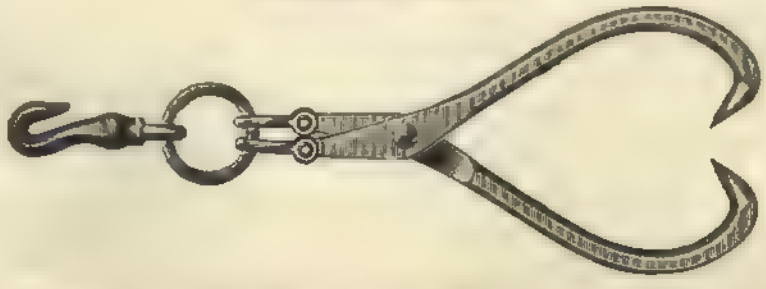
No. 220—Octagon Tool Steel

Size, Inches	1⅛	1¼	1⅜	1½	1⅝
Weight, Each, Pounds	19	22½	25	33	38
Each	$6 00	6 40	6.75	7 05	8 25
Size, Inches			1¾	1⅞	2
Weight, Each, Pounds			48	55	65
Each			$9 40	9 75	10 15

No. 221—Flat Tool Steel

Size, Inches	¾×2	⅞×2	⅞×2¼	1×2
Weight, Each, Pounds	32	34	36	38
Each	$5.25	6.75	7.15	7.15
Size, Inches	1×2¼	1×2½	1⅛×2¼	1⅛×2½
Weight, Each, Pounds	40	45	50	56
Each	$8 25	8 65	11 25	11 65

SKIDDING TONGS



Octagon Forged Tool Steel, with Blind Swivel and Grab Hook

No.		Per Doz
504	1 in. Octagon Forged Steel Hook Weight, 220 lbs. per Doz	$118 50
505	1⅛ in. Octagon Forged Steel Hook Weight, 280 lbs. per Doz	130 00

Lumbering Tools

SWAMP HOOKS

Octagon Tool Steel

No.		Per Doz.
550	Made of 1 in. Steel, with Ring and Grab Hook	$30 00
551	Made of 1⅛ in. Steel, with Ring and Grab Hook	32 50

No. 20—Octagon Tool Steel, with Ring

Size, In.	Weight, Each	Each
⅞	3 Pounds	$1 05
⅞	3½ Pounds	1.50
1	5 Pounds	1 75
1⅛	6½ Pounds	1.90
1¼	9 Pounds	2.10
1⅜	10 Pounds	2.25
1½	12½ Pounds	2.40
1⅝	15½ Pounds	2.70
1¾	16 Pounds	4.15
2	24 Pounds	5.25
2¼	33 Pounds	7.15

No. 21 Flat Tool Steel, with Ring

Size, In.	Weight, Each	Each
½×2	6 Pounds	$2 05
⅝×1½	8 Pounds	2.25
¾×2	10 Pounds	2 65
⅞×2	12 Pounds	2 80
⅞×2¼	14 Pounds	3.30
⅞×2½	15 Pounds	3.45
1 ×2	13 Pounds	3.60
1 ×2¼	14 Pounds	3 75
1 ×2½	17 Pounds	4.15
1⅛×2¼	20 Pounds	4.50
1¼×2¼	24 Pounds	4 90

DOG HOOKS

Urens

Size, Inches	½×1½	⅝×1¾	⅝×2	¾×2	¾×2¼	⅞×2	⅞×2¼	⅞×2½	1×2¼	1×2½
Weight per Doz., Pounds	21	33	45	51	63	63	72	81	81	96
Per Doz	$14 00	15.40	16.50	17.16	19.47	19.47	21.78	28 00	28.00	30 00

GRAB CHAIN HOOKS

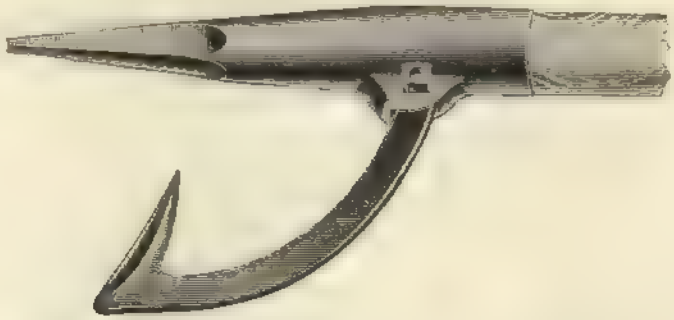
Size, Inches	5/16	⅜	7/16
Per Doz	$2.75	3.25	3.75
Size, Inches		½	⅝
Per Doz		$4 50	6 75

ROUND CHAIN HOOKS

Size, Inches	5/16	⅜	7/16
Per Doz	$2.75	3.25	3 75
Size, Inches		½	⅝
Per Doz		$4.50	6.75

Lumbering Tools

BANGOR RAFTING PEAVIES

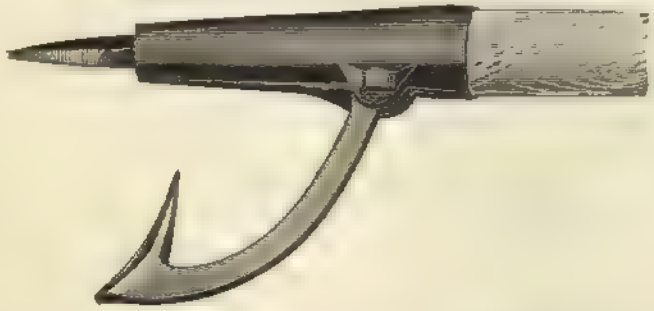


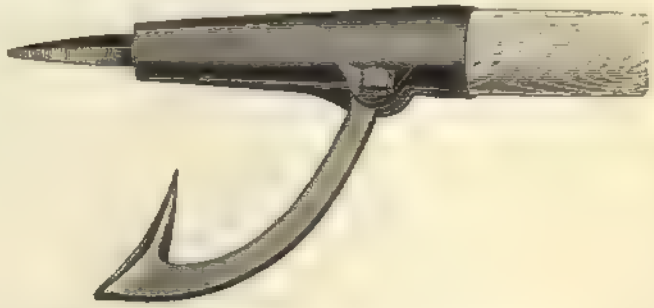
Wrought Steel Socket, Pick and Clasp in one piece

No.	Duck-Bill Hooks, Rock Maple Handles	Per Doz.
121	2¼×4 ft. Handles	$35.00
122	2¼×4½ ft. Handles	36.00
125	2½×4½ ft. Handles	37 00
129	2¾×5 ft. Handles	42.75
130	2¾×5½ ft. Handles	43.75
133	3 ×5 ft. Handles	47.25

No.	Duck-Bill Hooks, Hickory Handles	Per Doz
136	2¼×4 ft. Handles	$39 90
137	2¼×4½ ft. Handles	40.80
140	2½×4½ ft. Handles	42.30
144	2¾×5 ft. Handles	48.90
145	2¾×5½ ft. Handles	49.80
148	3 ×5 ft. Handles	54.35

MALLEABLE SOCKET PEAVIES



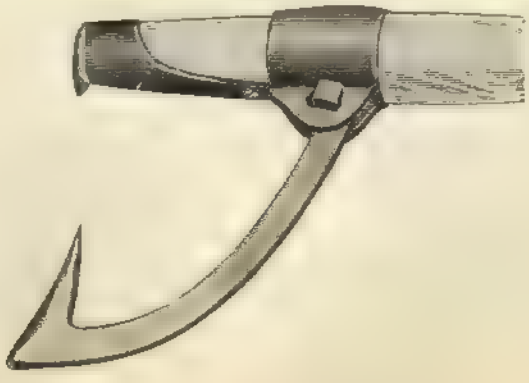


Malleable Split Sockets, Tool Steel Hooks

No.	Duck-Bill Hooks, Rock Maple Handles	Per Doz
5	2½×4½ ft. Handles	$26 40
6	2½×5 ft. Handles	27 10
9	2¾×5 ft. Handles	31 10
10	2¾×5½ ft. Handles	31 80
14	3 ×5½ ft. Handles	35 60

No.	Duck-Bill Hooks, Hickory Handles	Per Doz
35	2½×4½ ft. Handles	$32.90
36	2½×5 ft. Handles	33 90
39	2¾×5 ft. Handles	38.80
40	2¾×5½ ft. Handles	39.80
44	3 ×5½ ft. Handles	44 00

CANT HOOKS



No.		Per Doz.
222	2½×4½ ft. Rock Maple Handle, Duck-Bill Hook, Malleable Clasp	$19.40

Lumbering Tools

PEAVEY HANDLES

Rock Maple
Selected Straight Grain Stock, Wax Finish

No.		Per Doz.
702	2¼×4½ ft.	$3.40
704	2½×4½ ft.	3.40
705	2½×5 ft	3 80
709	2¾×5 ft.	4.60
710	2¾×5½ ft.	5.00
713	3 ×5½ ft.	5.80

Hickory
Extra Quality

No.		Per Doz.
751	2½×4½ ft.	$5.50
752	2½×5 ft.	5.90
756	2¾×5 ft.	6.90
757	2¾×5½ ft.	7.30
760	3 ×5½ ft.	8.30

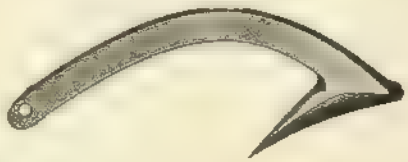
CANT HOOK AND PEAVEY BOLTS

No.		Per 100
592	7/16×1¾ in. Cant Hook and Peavey Bolts	$5.90

CANT HOOK CLASPS

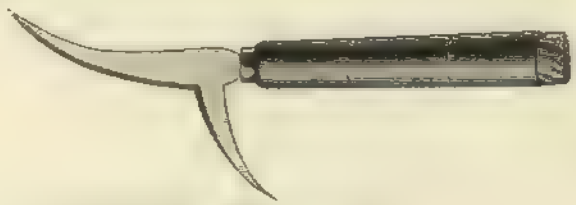
No.		Per Doz.
673	2½ in. Malleable Iron Cant Hook Clasps.	$5.00

PEAVEY HOOKS



No.		Per Doz
564	1×7/16 in. Forged Tool Steel, Duck-Bill Hooks	$12.50

PIKE POLES



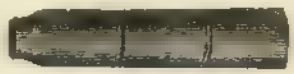
With Pike Only

No.		Per Doz.
413	Length of Pole, 12 ft.	$20.75
414	Length of Pole, 14 ft.	25 50
415	Length of Pole, 16 ft.	32 00
416	Length of Pole, 18 ft.	42 00

With Curved Pike and Hook

No.		Per Doz.
401	Length of Pole, 12 ft.	$23 75
402	Length of Pole, 14 ft.	28.50
403	Length of Pole, 16 ft.	35.00
404	Length of Pole, 18 ft.	45 00

Handles are made from selected White Ash, Pikes Hand Forged of Hammered Crucible Cast Steel and driven cold. Ferrules Seamless Norway Iron.



Handles for Pike Poles

No.	776	777	778	779
Length, Feet	12	14	16	18
Per Doz.	$11.25	13.75	17.50	25.00

Pike Pole Ferrules

No.	597
Per Doz. Sets	$4.50

Lumbering Tools

PICKAROONS

Lumber Sorters

No.		Per Doz.
420	—18 in. Handles	$12.00

For Handling Ties and Mill Refuse

No.		Per Doz.
419	—36 in. Handles	$16.66

HOOKAROONS

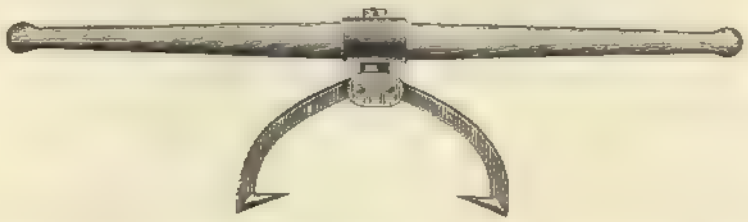
Axe Handled, Steel Point Pick

No.		Per Doz.
421	—Light Picks	$13.00
422	—Heavy Picks	16 45

Hookaroon Heads Only

No.		Per Doz.
599	—Light	$8.00
598	—Heavy	11.65

TIMBER CARRIERS

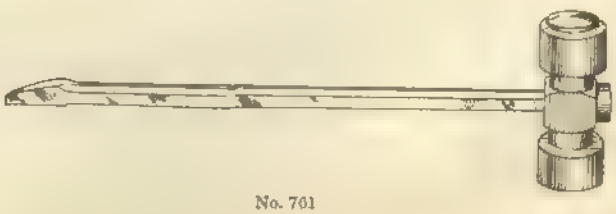


Will Grapple anything from 3 to 16 in. With Swivel to permit going through Narrow Places

No.		Per Doz.
425	—With 4 ft. Maple Handle and Duck-Bill Hooks	$26.71

HOOK TENDERS MAULS

No. 760

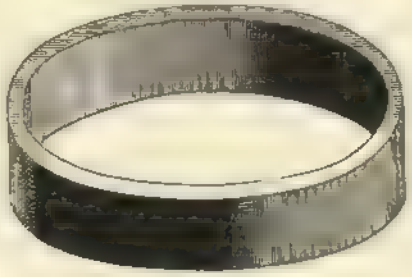


No. 761

No		Each
760	—Plain Norway Iron Head, 29 in. Tool Steel Handle with Pinch Point	$4 20
761	—Norway Iron Head with Bands, 29 in. Tool Steel Handle with Pinch Point	4 65
Extra Handles	—1 in. Octagon Steel, with nut	Each, $3 00

Lumbering Tools

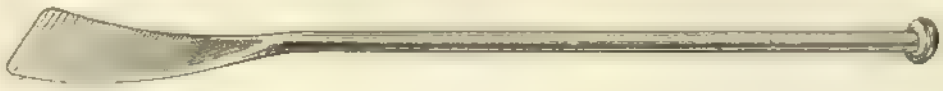
MAUL RINGS



Wrought Iron, For Wooden Mauls

Size, Inches, Inside Diameter	4	4½	5	5½
Per Pair	$0 60	.70	.80	.90

BARKING IRONS



Barking Irons—1 in. Round Steel, 48 in. long. Weight each, 12 Pounds — Each $3 00

CHOPPING BOARD IRONS

Chopping Board Irons—6×9 in. Flat; Has Sharp Edge to catch on tree. — Per Doz $7 50

TIMBER DOLLYS

No.		Each
649	Hardwood Frame, Cast Iron Rollers, 6 in. Diam.	$8.50
650	Hardwood Frame, Cast Iron Rollers, 8 in. Diam.	10 00

SIDE DOOR ROLLERS

No.		Each
659	Length of Wood 4½ ft.; Length of Screw 16 in.; Entire length 5 ft. 10 in., Roller 15 in. wide	$9 00

Agricultural Blacksmiths' Outfits.

Code Abraxite
No. D—Blacksmiths' Outfit, ... Each $30.00

Weight, 180 lbs. Each.

No. D Outfit Consists of the Following Tools

1—No. 105 Portable Forge,
1—35 lb. Box Vise,
1—No. 1730 Defiance Upright Drill,
1—60 lb. Eagle Anvil,
1—I X L Farriers' Knife,
1—2 lb. Blacksmith's Hand Hammer,
1—No. 152 Farriers' Hammer,
1 Pr. 14 In. Horseshoeing Pincers,
1 Pr. 24 In. Blacksmiths' Tongs,
1—1¼ In. Cold Eye Chisel,
1—1¼ In. Hot Eye Chisel,
1—1¼ In. Hardie,
1—16 In. Great Western Plain Horse Rasp

Code Abreastor
No. C—Blacksmiths' Outfit, ... Each $40.00

Weight, 195 lbs. Each.

No. C Outfit Consists of the Following Tools.

1—No. 105 Portable Forge,
1—No. 1730 Defiance Upright Drill,
1—35 lb. Box Vise,
1—No. 4 A, Blacksmiths' Stock and Die,
1—No. 110, 3/8 In. Twist Drill,
1—No. 110, 5/16 In. Twist Drill,
1—No. 110, 1/4 In. Twist Drill,
1—No. 110, 5/16 In. Twist Drill,
1—No. 110, 3/8 In. Twist Drill,
1—No. 110, 1/2 In. Twist Drill,
1—60 lb. Eagle Anvil,
1—I X L Farriers' Knife,
1—1¼ In. Hardie,
1—2 lb. Blacksmiths' Hand Hammer,
1—No. 152 Farriers' Hammer,
1 Pr. 14 In. Horseshoeing Pincers,
1 Pr. 24 In. Blacksmiths' Tongs,
1—1¼ In. Cold Eye Chisel,
1—1¼ In. Hot Eye Chisel,
1—16 In. Great Western Plain Horse Rasp

Code Abregate
No. B—Blacksmiths' Outfit, ... Each $50.00

Weight, 216 lbs. Each.

No. B Outfit Consists of the Following Tools.

1—No. 105 Portable Forge,
1—No. 1730 Defiance Upright Drill,
1—35 lb. Box Vise,
1—No. 1 B, Easy Screw Plate,
1—No. 110, 1/4 In. Twist Drill,
1—No. 110, 5/16 In. Twist Drill,
1—No. 110, 1/4 In. Twist Drill,
1—No. 110, 5/16 In. Twist Drill,
1—No. 110, 3/4 In. Twist Drill,
1—No. 110, 1/2 In. Twist Drill,
1—80 lb. Eagle Anvil,
1—I X L Farriers' Knife,
1—1¼ In. Hardie,
1—2 lb. Blacksmiths' Hand Hammer,
1—No. 152 Farriers' Hammer,
1 Pr. 14 In. Horseshoeing Pincers,
1 Pr. 24 In. Blacksmiths' Tongs,
1—1¼ In. Cold Eye Chisel,
1—1¼ In. Hot Eye Chisel,
1—16 In. Great Western Plain Horse Rasp

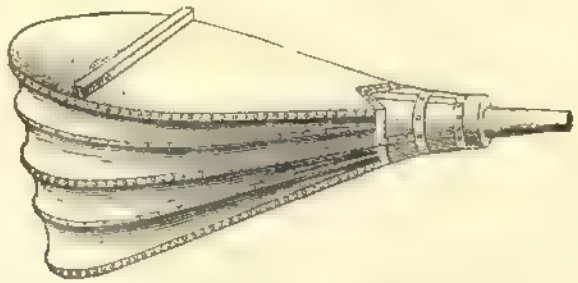
Code Abrelicos
No. A—Blacksmiths' Outfit, ... Each $60.00

Weight, 360 lbs. Each.

No. A Outfit Consists of the Following Tools.

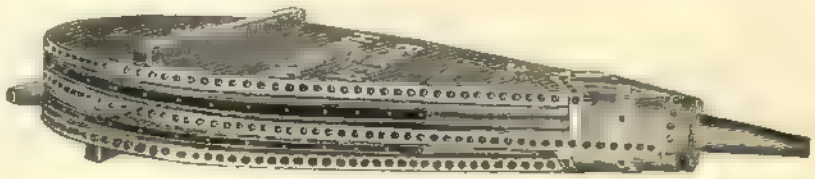
1—No. 104 Portable Forge,
1—No. 3 Champion Upright Drill,
1—50 lb. Box Vise,
1—No. 5 B, Easy Screw Plate,
1—No. 110, 3/8 In. Twist Drill,
1—No. 110, 5/16 In. Twist Drill,
1—No. 110, 1/4 In. Twist Drill,
1—No. 110, 5/16 In. Twist Drill,
1—No. 110, 3/8 In. Twist Drill,
1—No. 110, 1/2 In. Twist Drill,
1—No. 110, 3/4 In. Twist Drill,
1—Blacksmiths' Apron Skin,
1—80 lb. Eagle Anvil,
1—I X L Farriers' Knife,
1—1¼ In. Hardie,
1—3 lb. Blacksmiths' Hand Hammer,
1—No. 152 Farriers' Hammer,
1 Pr. 14 In. Hoof Nippers,
1 Pr. 14 In. Horseshoeing Pincers,
1 Pr. 24 In. Blacksmiths' Tongs,
1 Pr. 24 In. Gad Tongs,
1 Pr. 24 In. Pick Tongs,
1—1¼ In. Cold Eye Chisel,
1—1¼ In. Hot Eye Chisel,
1—16 In. Great Western Plain Horse Rasp.

Blacksmiths' Bellows.



California Pattern, Common Quality.

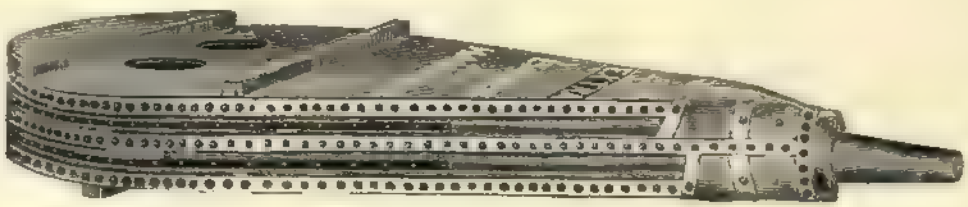
Inches,	24	26	28	30	32	34	36
Code	Abratonas.	Abrauvage.	Abrauve.	Abrauvoir.	Abreviado.	Abribono.	Abric
Weight Each, lbs.,	40	45	50	55	60	70	80
Each,	$12.00	13.00	14.00	15.00	16.00	17.00	19.00



California Standard, with Patent Nozzle.

Inches,	18	20	22	24	26	28
Code	Abrigarna.	Abrigue.	Abrikoos.	Abrikozen.	Abrimos.	Abriolo.
Weight Each lbs.	30	35	40	45	50	60
Each,	$9.00	10.00	11.00	12 00	13.00	14.00

Inches,	30	32	34	36	38	40
Code	Abripando.	Abripare.	Abripato.	Abripava.	Abripgen.	Abripuero
Weight Each, lbs.,	70	80	90	100	115	130
Each,	$15.00	16.00	17.00	19 00	21.00	22.50



California Pattern, Extra Long, with Patent Nozzle.

Inches,	36	38	40	42	44	46	48	50
Code	Abritions.	Abrivent.	Abrizam.	Abroach.	Abroad.	Abroase.	Abrobia.	Abrocomo
Weight Each, lbs.,	150	160	170	200	220	240	260	280
Each,	$27.00	28.50	30.00	31.50	44.00	57.50	72.00	87.50

Our Brands of Standard and Extra Bellows are constructed of the best quality California Redwood, and are full ribbed. The top and bottom swing on strong hinges, which takes the heavy strain off the leather. They are covered with firm and select Grain Leather

Blacksmiths' Bellows.

Eastern Pattern.

Inches.	24	26	28	30	32	34	36
Code	Abrogeon	Abrogemur.	Abroghl.	Abrohand.	Abrojales.	Abrojines	Abrojo
Weight Each, lbs.,	45	50	55	65	75	85	95
Each,	$10.00	11.00	12.00	13.00	14 00	16.00	18.00

Eastern Pattern, Extra Long.

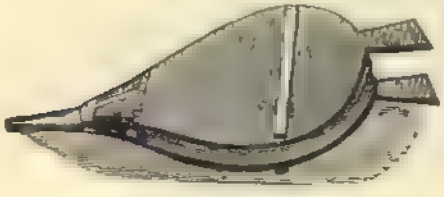
Inches	36	38	40	42	44
Code	Abrotque.	Abroquele.	Abrotrico.	Abrotol.	Abrotuan.
Weight Each, lbs.,	90	100	110	120	130
Each,	$21.00	24.00	28 00	34 00	40 00

BAKER & HAMILTON

Hand Bellows.

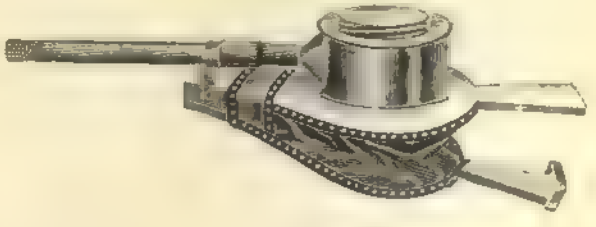
Inches,	6	7	8	9	10	12
Code	Abruptelon.	Abruptelle.	Abruptel.	Abruptlo.	Abrupty	Abruso
Weight Per Dozen, lbs.,	12	15	18	25	30	39
Per Dozen,	$6 00	7 00	8.00	9 00	10.00	12.00

Moulders' Bellows.



Inches.	12	14
Code	Absalzen.	Absanden.
Weight Per Dozen, lbs.,	36	52
Per Dozen,	$24.00	28.00

Sulphur Bellows.

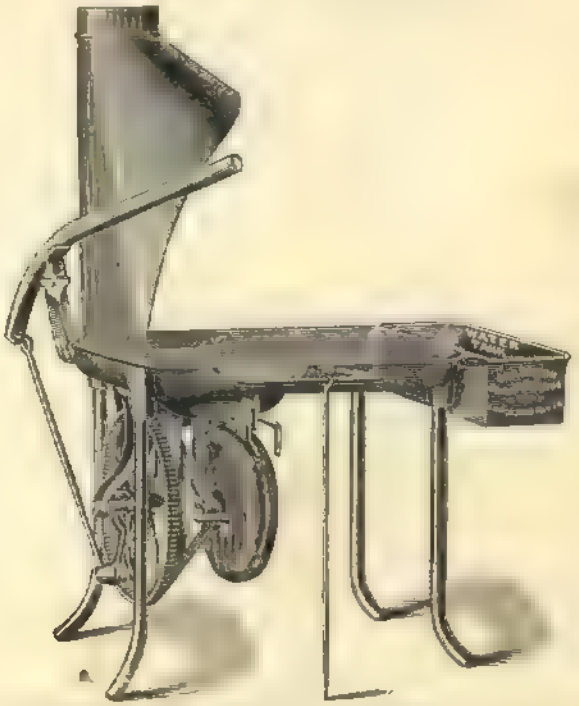


Favorite.

Inches.	6	8	10
Code	Absolo	Absolue	Absolut
Weight Each, lbs.,	2	2 1/2	3 3/4
Each,	$2.00	2 50	3 00

These Bellows are specially adapted for Painters, for Blowing Sand, also for Sulphuring Vines, Trees Etc

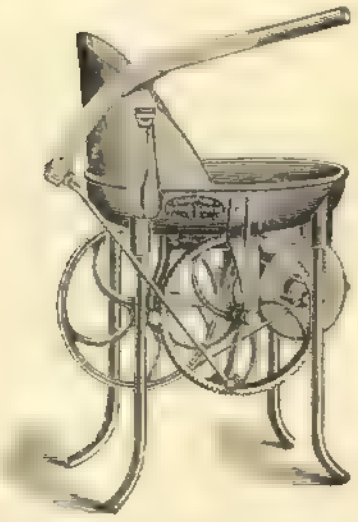
Portable Forges.



Code Abcdelem. Each
No. 0—With Half Hood, Hearth 28x40 In., Fan 14 In., Height 30 In. without Water Tank, . $50 00
Weight, 270 lbs. Each.

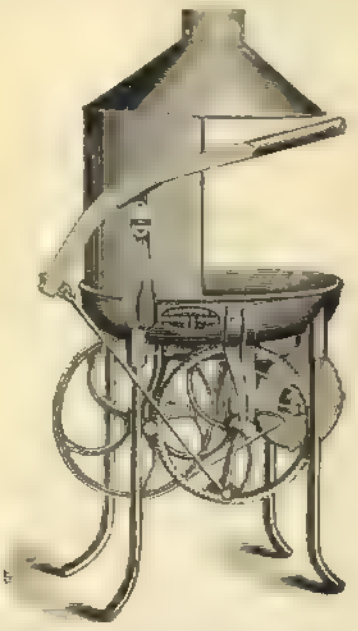
Code Abcenosse.
No. 0—With Half Hood Hearth 28x40 In. Fan 14 In., Height 30 In. with Water Tank . . 55 00
Weight, 300 lbs. Each.

This Forge is adapted for General Carriage and Blacksmiths Work, Made with Anti-Clinker Ball Tuyere Iron for Regulating Blast.



Code Abdelsem. Each
No. 3 With Shield Hearth 21x27 In.
Fan 10 In., Height 29 In., . $36 00
Weight 130 lbs. Each.

This Forge is adapted for Carriage Makers, Iron Bridge and Shop Builders, Railroad Contractors, Mines, Tank Builders, Etc.

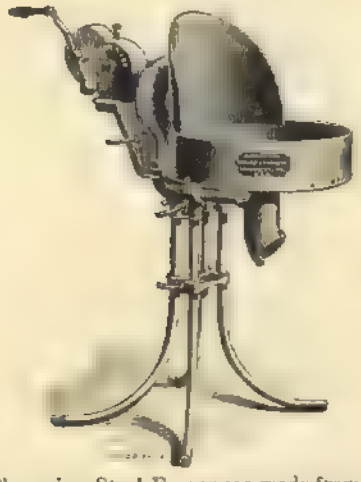


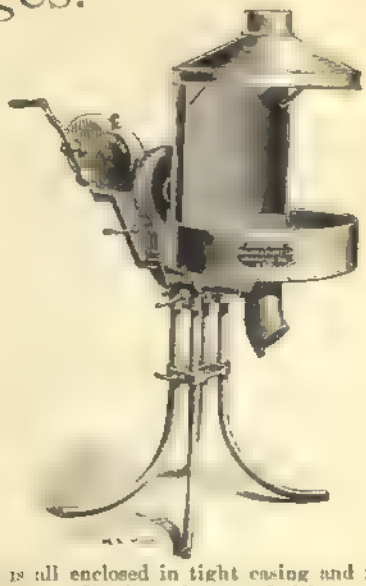
Code Abdamus. Each
No. 1—With Half Hood Hearth 21x27 In.
Fan 10 In. Height 29 In., . . $40 00
Weight 140 lbs. Each.

This Forge is adapted for the Heaviest Medium Work, as in Bridge Builders, Boiler Makers, Tank Builders, Miners, Dredge Use, Elevated Railroad Repairs, Farmers, Etc.

Portable Forges.

Champion.





The Champion Steel Forges are made from structural steel, the machinery is all enclosed in tight casing and noiseless. No belts or friction. Ball-bearings. Will produce blast to weld 4 Inch Iron in ten minutes. Crank can be turned either way.

Code Abdatura. Each

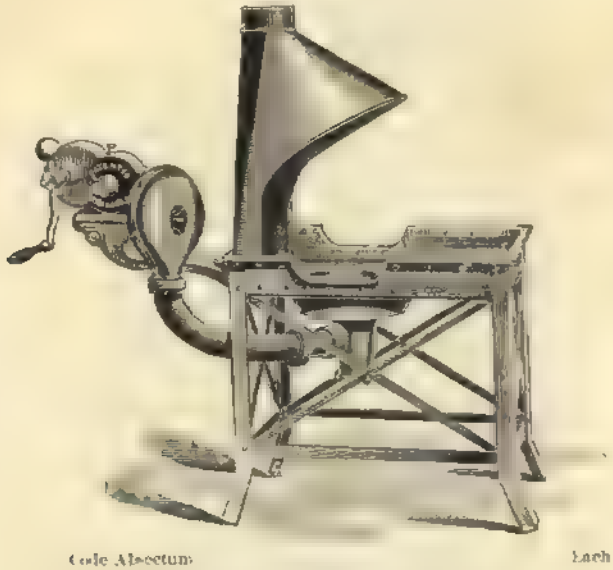
No. 401—Riveters', with Shield, Hearth 18 In. Diameter, Fan 9 In., Height, 30 In., ... $35.00
Weight, 90 lbs. Each.

This forge is adapted for Government use, Elevated and Steam Railroads, Bridge and Tank Builders, Miners and Prospectors, Boiler Repairers or any portable work requiring compactness and lightness with a strong blast.

Code Abdedi. Each

No. 402—Toolmakers', with Half Hood, Hearth 18 In. Diameter, Fan 9 In., Height 30 In., . $38.00
Weight, 90 lbs. Each.

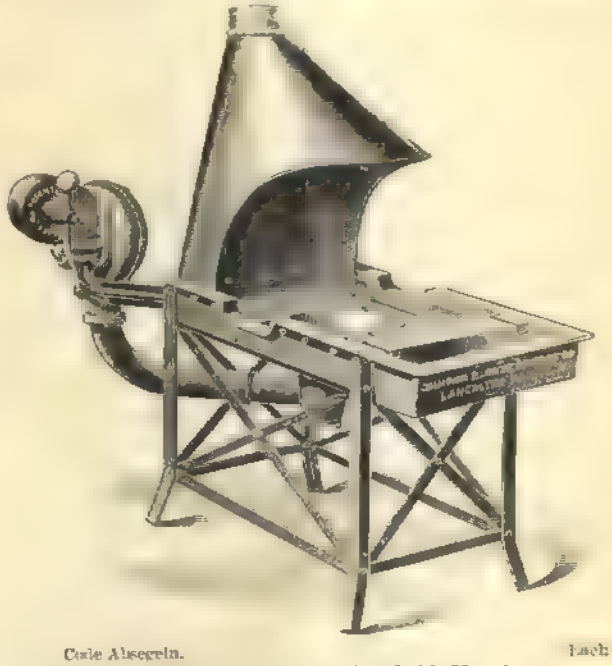
This Forge is adapted for Toolmakers, Jewelers, Bicycle Repairers, Tempering, Tank Builders, Miners, Prospectors, Repairing on Boilers, Steam and Elevated Railroads.



Code Abcetun Each

No. 405—Toolmakers', with Half Hood. Hearth 24x24 In., Fan 9 In., Height, 30 In., ... $49.00
Weight, 120 lbs. Each.

This Forge is adapted for inside use of Toolmakers, Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, Making Repairs on Boilers, Steam and Elevated Railroads



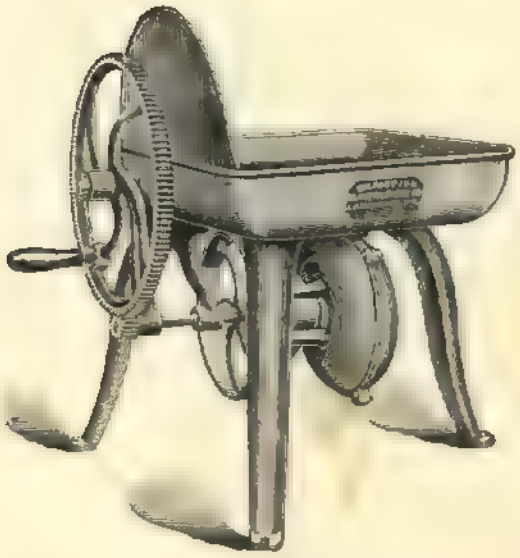
Code Abcegin. Each

No. 408—Horseshoers', with Half Hood, Hearth 30x36 In., Fan 12 In., Height 30 In., ... $75 00
Weight, 225 lbs Each

This Forge is adapted for any kind of [illegible] smith's Work, from the Lightest to the Heaviest [illegible]

Portable Forges.

Champion.



Code Absentaul. Each

No. 7—Farmers, with Shield, Hearth 14 x 17 In., Fan 7 In., Height 15 In.. . . . . $16.00

Weight, 45 lbs. Each.

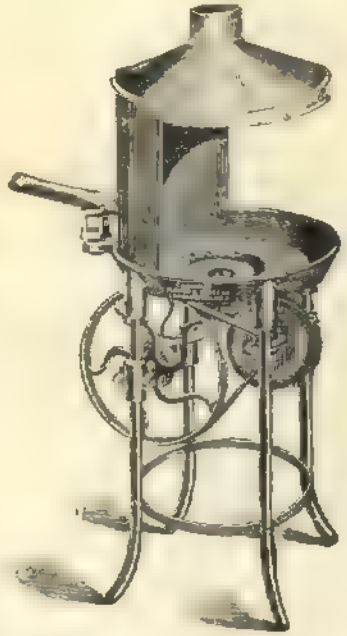
For use of Miners Prospectors, and Farmers. Very Handy for Heating Rivets, Tools for Sharpening, etc.

Code Absentavi. Each

No. 150—Agricultural, with Shield, Hearth 18 In. Diameter, Fan 8 In., Height 30 In.. . . . . $10.00

Weight, 65 lbs. Each.

Suitable for Light Outdoor Work.



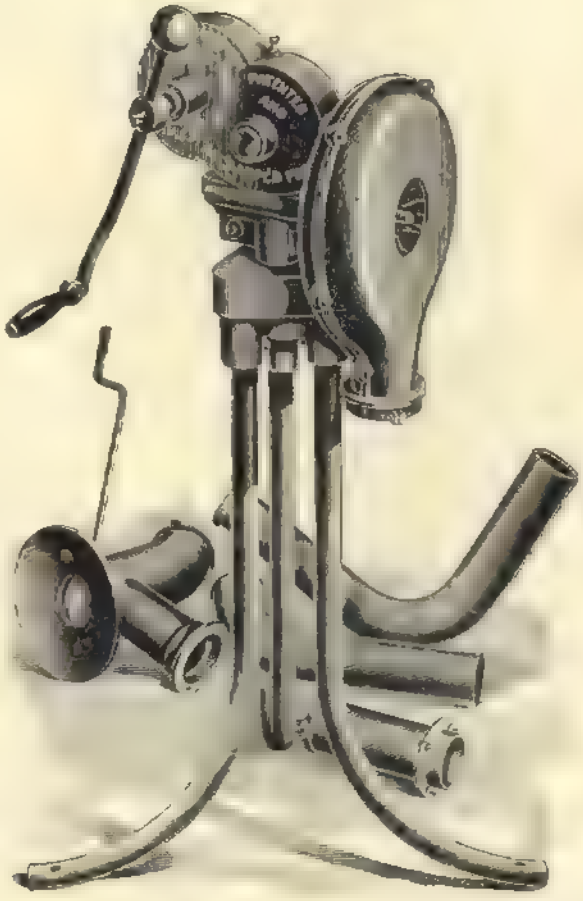
Code Absentiex. Each

No. 151—Agricultural, with Half Hood. Hearth 18 In. Diameter. Fan 8 In., Height 30 In., . . $12 00

Weight, 70 lbs. Each.

Suitable for Light Indoor Work.

Blacksmiths' Blowers.

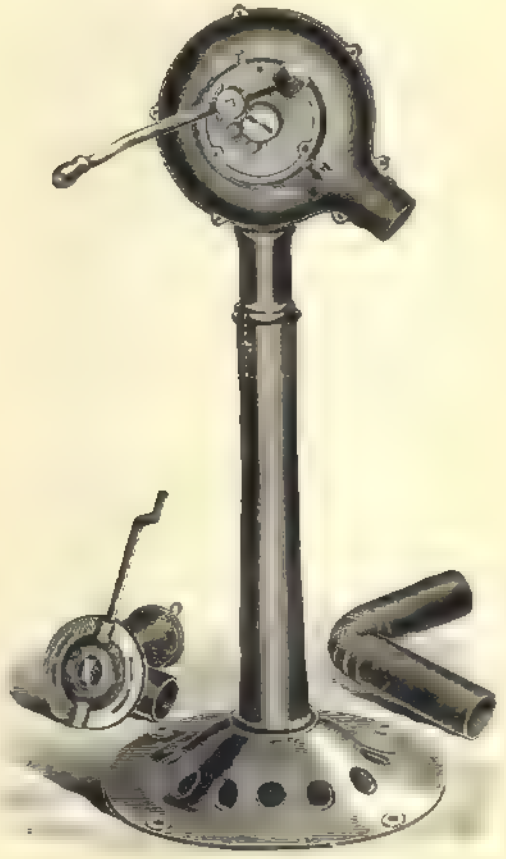


Champion.

Code Abstract. | Each

No. 400—Ball Bearing, Cog Geared Blower, Fan is 12 In. Diameter with Tuyere Iron and Piping, Weight, 100 lbs. Each. **$37.00**

All Working Parts made of Best quality Tool Steel with Phosphor Bronze, all running [illegible] and enclosed in an oil-tight casing Steel throughout with Highest Grade of Ball Bearing



Benicia.

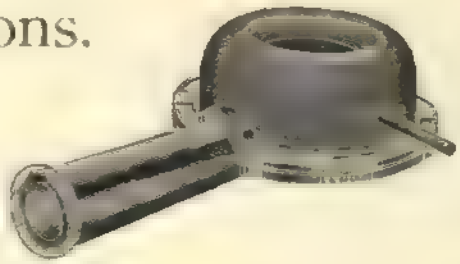
Code Abididole | Each

No. 800—Cog Geared Blower, Fan is 12 In. Diameter, with Tuyere Iron and Piping, . . . **$16.00**
Weight, 100 lbs. Each.

Is substantially built, Cog Gears and Pinions are built for high speed Best of Material used and a [illegible] in an oil-tight casing. Crank turns in either direction to make the blast

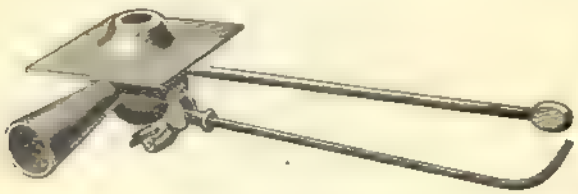
Tuyere Irons.

Code Absinthe. Each
No. 3—Ducks Nest, ... $1.50
Weight, 13 lbs. Each.



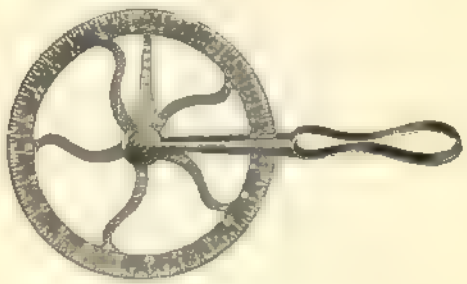
Code Absinthe. Each
No. 1—Clark's, ... $2.50
Weight, 19 lbs. Each.

Code Absinthe.
No. 2—Clark's, ... 3.00
Weight, 21 lbs. Each.



Code Abscoer. Each
No. 10—Warren's Patent, ... $3.00
Weight, 27 lbs. Each.

Code Absolving. Each
No. 6—Sutton's, Bowl and Tuyere, . $5 00
Weight, 40 lbs. Each.



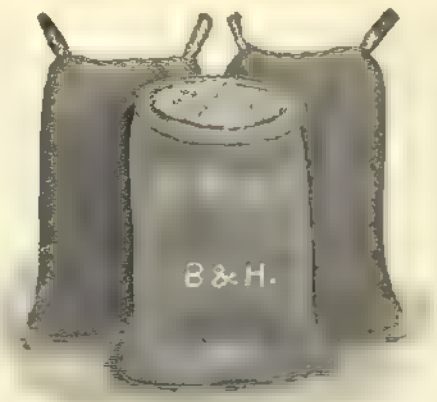
Tire Measuring Wheels.

Code Absonant Each
No. 2—Green River, Graduated, Japanned Handle, . $1.50
Weight, 3 lbs. Each.

Welding Compound.

Code Absorbs. Per Pound
Cherry Heat Compound, ... $0.25
Code Absorbed.
Climax Compound .20
Five Pounds in a Box.
For Welding Iron to Iron, Steel to Steel and Malleable Iron to Steel.

Borax.



Code Absolute Per Pound
Borax, Snow White, ... $0 12
Weight, 90 lbs. Per Sack.

Blacksmiths' Coal.

"Keystone" Brand.

Code Alstand. Per Ton

Keystone Smithing Coal, in Sacks, Average Weight, 250 lbs. Per Sack, ... $.....

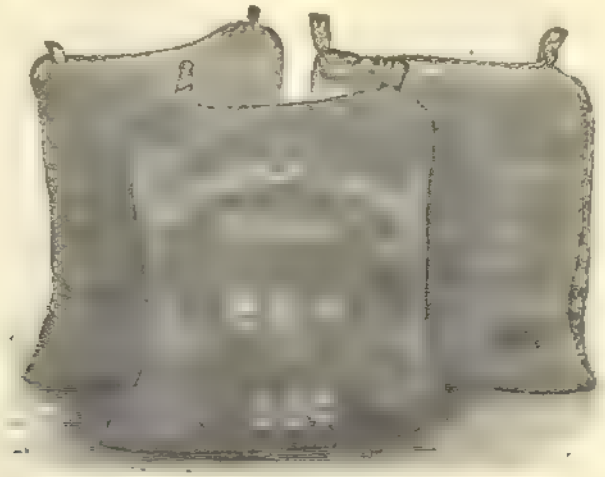
Prices on Application.

Is the very best Mined and always Uniform Quality. It is a bright Clean Coal, unusually free from Slate, Sulphur and other Impurities, makes a good strong Coke and a very hot lasting Fire. It Burns to a clean white ash without any clinkers. **These qualities make "Keystone" very popular.**

We import all our **"Keystone Coal"** in sealed Box Cars direct from the mines, while the Coal imported to San Francisco by Sea as a rule has been in Coal Bunkers for months, exposed to the elements frequently being **"Slacked" full of Slate, Sulphur and Other Impurities.**

You pay the same amount in Freight on poor Coal that you do on the very best. Always insist on having the best by specifying **"Keystone"** and take no other. The only **Warranted** Coal in the Market.

Each Sack branded as per Trade Mark Above.

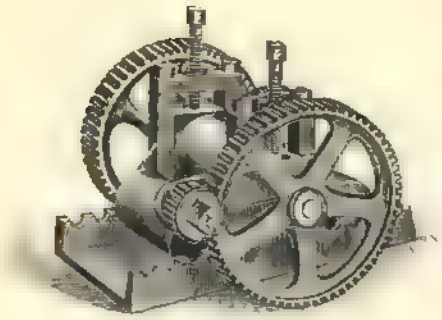


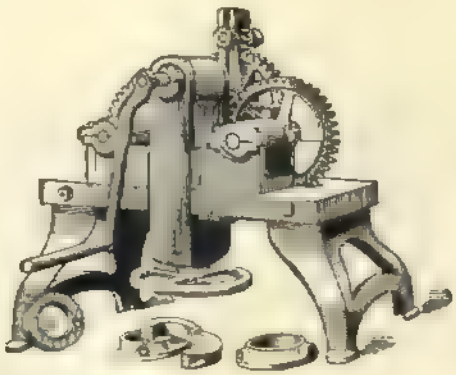
Code Alstechen. Per Ton

Cumberland Smithing Coal, in Sacks, Average Weight, 250 lbs. Per Sack, ... $

Prices on Application.

Tire Benders and Upsetters.





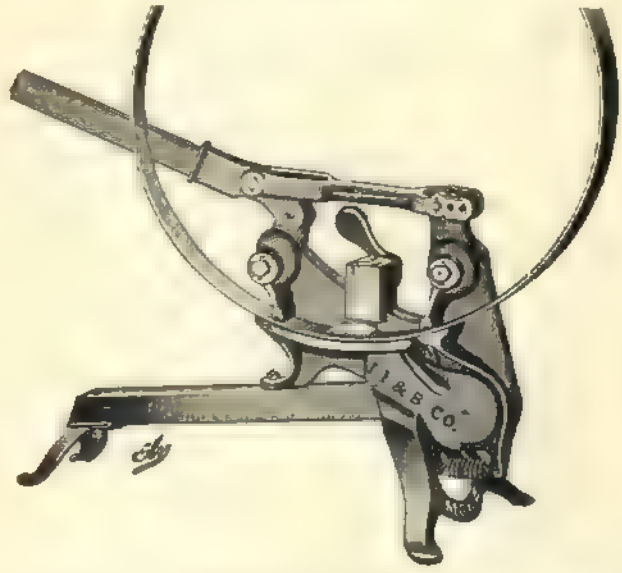
Kingsley's, Benders.

Double Gear.

		Each
Code Absterben. **No. 3**—Will Bend 3½ by ¾ In. Iron. Weight, 175 lbs. Each.		$20.00
Code Absterging. **No. 4**—Will Bend 1 6 x 1 In. Iron, Weight 325 lbs. Each.		32.50
Code Absterpsel **No. 5**—Will Bend 6 x 1½ In. Iron, Weight, 355 lbs. Each.		36.00

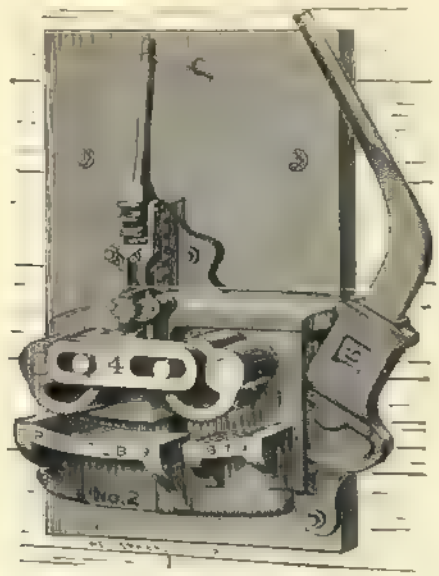
Double Gear, with Double Collars.

		Each
Code Absteuern. **No. 7**—Will Bend Iron 1½ In. Thick, will also Bend Tires on Edge, Weight, 625 lbs. Each.		$80.00



Mole's Improved.

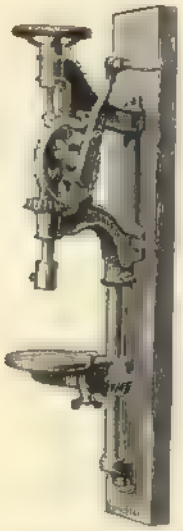
		Each
Code Abstimes. **No. 1**—Upsets Tires up to 2½ In. Weight, 150 lbs. Each.		$16.00
Code Abstimax **No. 2**—Upsets Tires up to 3 In., Weight, 225 lbs. Each.		21.00
Code Abstineam, **No. 3**—Upsets Tires up to 4 In., Weight, 300 lbs. Each.		25.00



Lightning.

		Each
Code Abstracted **No. 2**—Upsets Tires up to 4 In. Weight, 250 lbs. Each.		$22.00
Code Abstractly. **No. 3**—Upsets Tires up to 4 In., with Adjustable Jaws, Weight, 275 lbs. Each.		26.00
Code Abstractum. **No. 4**—Upsets Tires up to 6 In., Weight, 410 lbs. Each.		36.00
Code Abstraire. **No. 5**—Upsets Tires up to 6 In., with Adjustable Jaws, Weight, 450 lbs. Each.		45.00

Upright Drills.



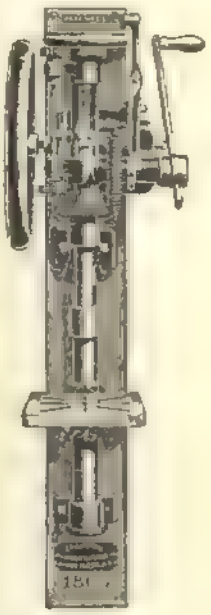
Drill Spindles Bored for 41/64 In. Straight Shank Drills.

Code Abstruse — Each

No. 1730—Defiance, Single Geared, Hand Feed, Extension Crank Swing Table, will Drill up to ¾ In. Diam., and to Center of 12 In. Circle, ... $8.00
Weight, 55 lbs. Each.

Code Abolitionist — Each

No. 3 Champion, Double Geared Self Feed, Extension Crank, Swing Table, Will Drill up to 1¼ In. Diam. and to Center of 12 In. Circle $10.00
Weight 100 lbs. Each.



Drill Spindles Bored for 41/64 In. Straight Shank Drills.

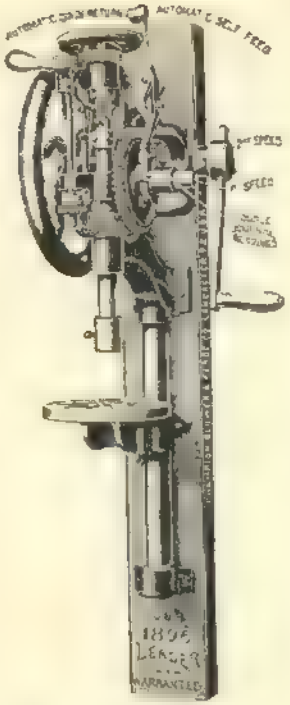
Code Absolve. — Each

No. 1893—Champion, Double Geared, Self Feed, Extension Crank, Swing Table, Will Drill up to 1¼ In. Diam. and to Center of 15 In. Circle, ... $12.00
Weight, 125 lbs. Each.

Code Absurdity — Each

No. 1894 Champion Double Geared, Automatic Quick Return Self Feed, Swing Table, Will Drill up to 1¼ In. Diam. and to Center of 15½ In. Circle . $15.00
Weight, 130 lbs. Each.

Upright Drills.

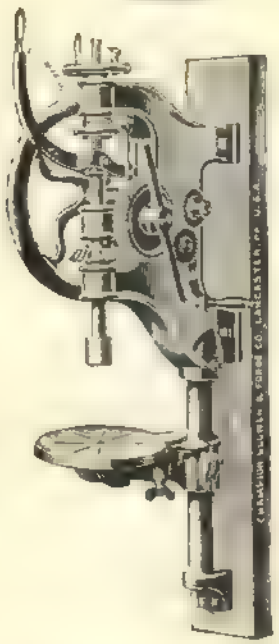


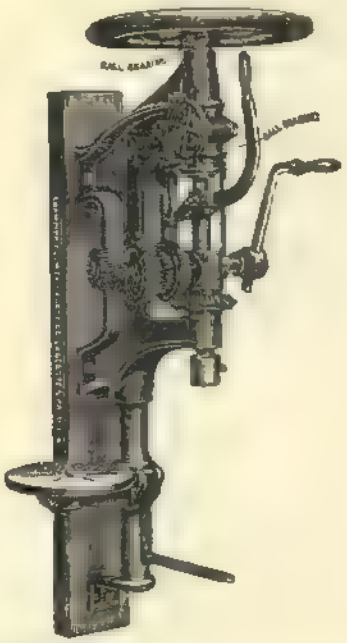
Code Absumption. Each

No. 1896—Champion, Automatic Quick Return Self Feed, Extension Crank, Swing Table, will drill up to 1¼ In. Diam. and to Center of 15½ In. Circle, . $12.50

Weight, 135 lbs Each.

Extra for Power Attachment, . . . 3.00





Combination Self Feed and Lever Feed.

These Drills are supplied with Champion Patented Combination Automatic Self Feed and Lever Feed, either of the Feeds have Instantaneous Quick Return of the Drill Bit, therefore dispensing entirely with the turning of the feed screw back to get the Bit out of the Work

Code Absumption. Each

No. 200—Champion Ball Bearing, Patent Combination Automatic Self Feed and Lever Feed, Feed has up and down run of 4 In., Extension Crank, Swing Table, will drill up to 1¼ In. Diam. and to Center of 16 In. Circle, . . . $28.00

Weight, 160 lbs. Each.

Code Absurd Each

No. 201—Champion, Ball Bearing, Patent Combination Automatic Self Feed and Lever Feed, Feed has up and down run of 5 In., Extension Crank, Swing Table, will drill up to 1¼ In. Diam. and to Center of 18 In. Circle, . . . $40.00

Weight, 200 lbs. Each.

Padlocks.

Half Size Cuts

Code Bemquerer. Per Dozen

No. 209—1¾ In., Malleable Iron Case. Japanned. Loose Shackle. 2 Malleable Iron Keys, . . . $8.00

Weight, 6½ lbs. Per Dozen.

Code Bemquistar. Per Dozen

No. 235½—2½ In., Malleable Iron Case, Japanned, Fast Shackle, 2 Flat Steel Keys, ... $19.50

Weight 18 lbs. Per Dozen

Code

No. 236½ 3 In., Malleable Iron Case, Japanned, Fast Shackle, 2 Flat Steel Keys, ... 26.00

Weight, 30 lbs. Per Dozen.

Code Bemtevi Per Dozen

No. 1645—1¾ In., Cast Iron Case, Japanned, with Wrought Steel Fast Shackle, 6 Tumblers, 2 Nickel Plated Flat Steel Keys, . $4.25

Weight, 7 lbs. Per Dozen.

Code Bemuddling. Per Dozen

No. 1646—2 In., Cast Iron Case, Japanned, with Wrought Steel Fast Shackle. 6 Tumblers, 2 Nickel Plated Flat Steel Keys. . . $5.25

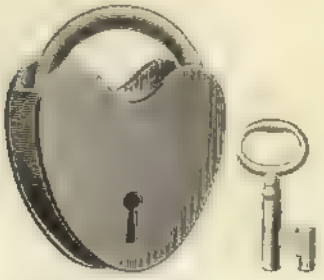
Weight, 11½ lbs. Per Dozen.

Half Dozen in a Box

Padlocks.

Code Bemuehung. Per Dozen

No. 0000 –2 In. Wrought Iron, Japanned Iron Tumbler, 1 Wheel Ward, 2 Iron Keys, . . $2 10
Weight, 2¼ lbs. Per Dozen.

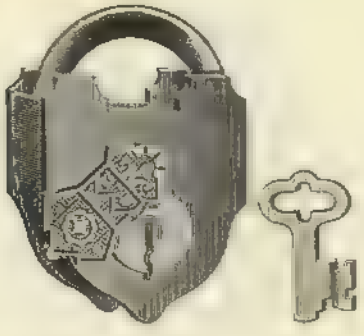


Code Bemuffling. Per Dozen

No. 000 2 In., Wrought Iron Japanned, Wrought Iron Tumbler and Shackle, 1 Wheel Ward, 2 Iron Keys, . $3.05
Weight, 3½ lbs. Per Dozen.

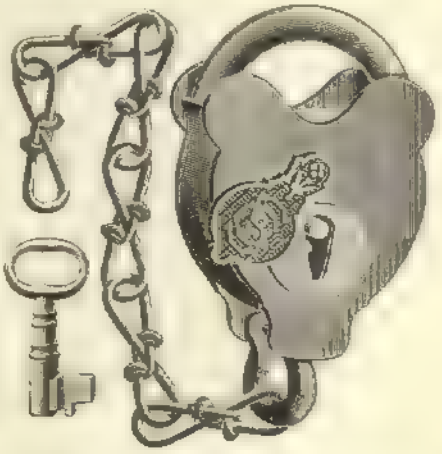
Code Bemurmer. Per Dozen

No. 1—2½ In., Wrought Iron, Japanned, Brass Drop, Wrought Iron Tumbler and Shackle, 1 Wheel Ward, 2 Iron Keys, ... $4.50
Weight, 3½ lbs. Per Dozen



Code Bemuzzling Per Dozen

No. 1031 –2½ In., Wrought Iron, Japanned Brass Drop and Bushing, Wrought Iron Shackle and Bolt, Revolving Key Pin, 1 Wheel Ward 2 Iron Keys $8.40
Weight, 7 lbs. Per Dozen.



Code Benvest Per Dozen

No. 14 2½ In Wrought Iron Japanned, with Chain, Brass Drop and Bushing, Wrought Iron Spring Shackle and Bolt, Side Ward 2 Iron Keys, $9.30
Weight, 9 lbs. Per Dozen.

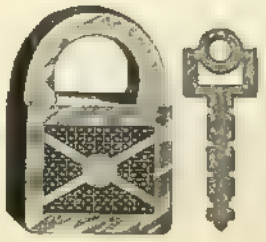
Half Dozen I n a Box.

Padlocks.

Code Benaccione. | Per Dozen

No. 1303—1⅜ In., Aluminum Bronze, Bronze Metal Spring Shackle, 3 Tumblers, 2 Flat Steel Keys, . $1.85

Weight, 1¾ lbs. Per Dozen.



Code Beauffetto. | Per Dozen

No. 303—1⅝ In., Aluminum Bronze Case, Bronze Metal Spring Shackle, 3 Tumblers, 2 Flat Steel Keys, . $2.10

Weight, 2½ lbs. Per Dozen.

Code Benagelung. | Per Dozen

No. 904—1¼ In., Wrought Steel Case, Black Japanned, Bright Steel Spring Shackle 2 Flat Steel Keys, ... $1.25

Weight, 1½ lbs. Per Dozen.

Code Benanche. | Per Dozen

No. 906—1½ In., Wrought Steel Case, Black Japanned, Bright Steel Spring Shackle, 2 Flat Steel Keys, $1.35

Weight, 1⅞ lbs. Per Dozen.

Code Benardheid. | Per Dozen

No. 908—1¾ In., Wrought Steel Case, Black Japanned, Bright Steel Spring Shackle, 2 Flat Steel Keys, $1.50

Weight, 2¼ lbs. Per Dozen.

Half Dozen in a Box

Padlocks.

Code Benatwing. Per Dozen
No. 1398—1 In., Enameled Steel Case, Bright Steel Spring Shackle, 4 Brass Tumblers, 6 Changes, 2 Nickel Plated Flat Steel Keys, $3.50

Code Benchamum.
No. 1400—1 In., Brass Case, Brass Plated Spring Shackle, 4 Brass Tumblers, 6 Changes, 2 Nickel Plated Flat Steel Keys, . . 4.80
Weight, 1¼ lbs. Per Dozen.

Code Bencreato. Per Dozen
No. 76—1½ In., Enameled Steel Case, Bright Steel Spring Shackle, 4 Brass Tumblers, 6 Changes, 2 Nickel Plated Flat Steel Keys, . $3.70

Code Bendattura.
No. 77—1½ In., Brass Case, Brass Plated Spring Shackle, 4 Brass Tumblers, 6 Changes, 2 Nickel Plated Flat Steel Keys, ... 5.00
Weight, 3¼ lbs. Per Dozen

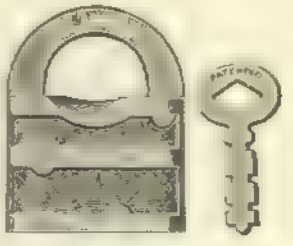
Code Bendella. Per Dozen
No. 925—1¾ In., Bronze Metal, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Flat Steel Keys . $ 7.75
Weight, 4 lbs. Per Dozen

Code Bendiola
No. 926—2 In., Bronze Metal, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Flat Steel Keys, ... 10.75
Weight, 5½ lbs. Per Dozen.

Code Bendidora. Per Dozen
No. 925C—1¾ In., Bronze Metal with 8 In. Chain, Bronze Metal Spring Shackle, 3 Secure Levers 2 Flat Steel Keys, ... $10.00
Weight 5 lbs. Per Dozen.

Code Bendiga.
No. 926C—2 In., Bronze Metal, with 8 In. Chain, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Flat Steel Keys. 12.50
Weight, 6½ lbs. Per Dozen

Code Per Ilx. Per Dozen
No. 214—1½ In., Cast Brass Case, Brass Spring Shackle, 2 Flat Steel Keys, ... $2.85
Weight, 1⅞ lbs. Per Dozen.



Code Benesped. Per Dozen
No. 221—2 In., Cast Brass Case, Brass Spring Shackle, 2 Flat Steel Keys, ... $4.25
Weight, 4 lbs. Per Dozen.

Half Dozen in a Box.

BAKER & HAMILTON

Padlocks.

Code Benedetto. Per Dozen

No. 927¾—2 In., Wrought Iron Case, Black Japanned, Nickel Plated Spring Shackle, 4 Secure Levers 2 Double Bitted Steel Keys, ... $3.50

Code Benedicto.

No. 927⅛ 2 In. Wrought Iron Case Brass Plated Brass Plated Spring Shackle, 4 Secure Levers 2 Double Bitted Steel Keys 3.50

Code Benedicto.

No. 0927 2 In., Wrought Brass Case, Nickel Plated Spring Shackle, 4 Secure Levers, 2 Double Bitted Steel Keys, ... 5.00

Weight, 3½ lbs. Per Dozen

Code Benedireto. Per Dozen

No. 994¼—2 In., Steel Case, Japanned, Bright Steel Spring Shackle, 1 Ward, 3 Secure Levers, 2 Nickel Plated Flat Steel Keys, . . . $3.00

Code Benedidoro

No. 994¾—2 In., Steel Case, Brass Plated, Brass Plated Spring Shackle, 1 Ward, 3 Secure Levers, 2 Nickel Plated Flat Steel Keys, . . . 3.00

Code Benedixero.

No. 0994—2 In., Wrought Brass Case Wrought Brass Spring Shackle, 1 Ward, 3 Secure Levers, 2 Nickel Plated Flat Steel Keys, . . . 4.00

Weight, 3¾ lbs. Per Dozen.

Code Benefacto. Per Doze

No. 994¼C—2 In., Wrought Steel Case with Steel Chain, Wrought Steel Spring Shackle, 1 Ward, 3 Secure Levers, 2 Nickel Plated Flat Steel Keys . . . $4.50

Weight, 6½ lbs. Per Dozen.

Half Dozen in a Box

Padlocks.

Code Benefe. Per Dozen
No. 982¼—1¼ In., Brass Plated Steel Case, Brass Plated Steel Spring Shackle, 6 Changes, 2 Flat Steel Keys, ... $1.75
Weight, 3½ lbs. Per Dozen.

Code Benefteava Per Dozen
No. 0972A—1½ In. Brass Case, Wrought Brass Spring Shackle, 5 Screw Levers, 2 Nickel Plated Flat Steel Keys, All Different in a Dozen, . $8.00
Weight 4 lbs. Per Dozen

Code Benelicent. Per Dozen
No. 2905¼—1¾ In. Brass Plated Wrought Steel Case, Brass Plated Steel Spring Shackle, 2 Flat Steel Keys, ... $1.35
Weight, 3 lbs. Per Dozen.

Code Benetichi. Per Dozen
No. 2906¼ 2 In. Brass Plated Wrought Steel Case, Brass Plated Steel Spring Shackle, 2 Flat Steel Keys, $1.60
Weight, 3½ lbs. Per Dozen.

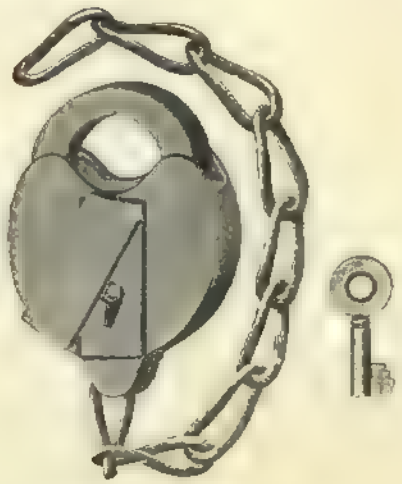
Code Benegrotg. Per Dozen
No. 2907¼—2¼ In., Japanned Steel Case, Bright Steel Spring Shackle, 2 Flat Steel Keys, ... $1.85
Code Benegroing.
No. 2907¾—2¼ In., Brass Plated Steel Case, Brass Plated Steel Spring Shackle, 2 Flat Steel Keys, . . 1.85
Weight, 4¼ lbs. Per Dozen.

Code Benejnaken. Per Dozen
No. 981¼—2 In., Japanned Steel Case, Bright Steel Swivel Spring Shackle, 2 Flat Steel Keys, . . . $3.10
Code Benemerens.
No. 981¾—2 In. Brass Plated Steel Case, Brass Plated Swivel Spring Shackle, 2 Flat Steel Keys, . . . 3.10
Weight, 4 lbs. Per Dozen.

Half Dozen in a Box.

Padlocks.

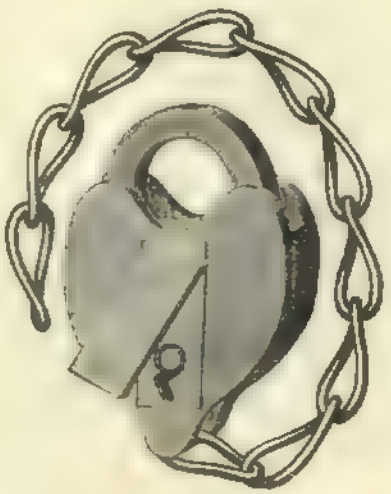
Half Size Cuts.



Code Benumb. Per Dozen

No. 0930½C—2¼ In., Bronze Metal Case, with Steel Chain, Bronze Metal Spring Shackle, 2 Secure Levers, 2 Bronze Metal Keys, . . . $9.00

Weight, 11 lbs. Per Dozen.



Code Benumbum. Per Dozen

No. 0963½C—2½ In., Bronze Metal Case with Steel Chain, Bronze Metal Spring Shackle, 1 Ward, 2 Secure Levers, 2 Bronze Metal Keys, . . $13.00

Weight, 14 lbs. Per Dozen.

Code Benumb. Per Dozen

No. 79—2¼ In. Bronze Metal Case, with Steel Chain, Bronze Metal Spring Shackle, with Drop, 3 Tumblers, 2 Bronze Metal Keys, . . . $11.50

Weight, 12 lbs. Per Dozen.

Code Benumbing. Per Dozen

No. 85—2½ In. Bronze Metal Case, with Steel Chain Bronze Metal Spring Shackle, Spring Drop, 3 Tumblers, 2 Bronze Metal Keys, . . . $14.00

Weight, 14 lbs. Per Dozen.

Half Dozen in a Box.

We can also furnish form Stock all Padlocks listed on this Page, Keyed alike.

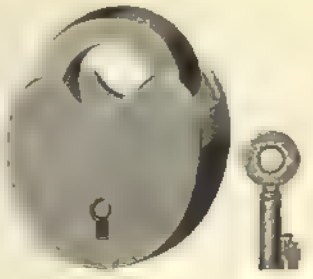
Padlocks.

Code Benummern. Per Dozen
No. 2947¼—1½ In., Bronze Metal Case, Bronze Metal Spring Shackle, 2 Secure Levers, 2 Bronze Keys, . . $4 25
Weight, 3¾ lbs. Per Dozen.

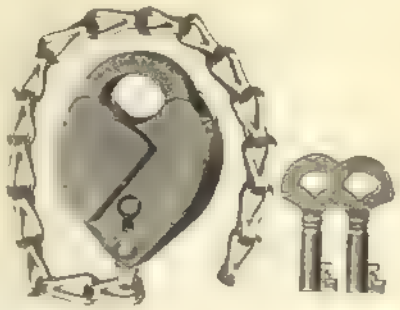
Code Benvole
No. 2948¼—1¾ In., Bronze Metal Case, Bronze Metal Spring Shackle, 2 Secure Levers, 2 Bronze Keys, . . 5.00
Weight, 5 lbs. Per Dozen.

Code Benvolate Per Dozen
No. 1961—1½ In., Bronze Metal Case, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Bronze Metal Keys, $10.00
Weight, 3 lbs. Per Dozen.

Code Benzol Per Dozen
No. 1963—2 In. Bronze Metal Case, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Bronze Metal Keys, . $12.00
Weight, 6 lbs. Per Dozen.



Code Benvolter. Per Dozen
No. 2949¼—2 In., Bronze Metal Case, Bronze Metal Spring Shackle, 2 Secure Levers, 2 Bronze Keys, . . $6.75
Weight, 7 lbs. Per Dozen.



Code Benzilate Per Dozen
No. 1961C—1½ In., Bronze Metal Case, Wrought Bronze Chain, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Bronze Metal Keys, $12.00
Weight, 4½ lbs. Per Dozen.

Code Benzol Per Dozen
No. 1963C—2 In., Bronze Metal Case, Wrought Bronze Chain, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Bronze Metal Keys, . $14.00
Weight, 7½ lbs. Per Dozen.

Half Dozen in a Box.

Padlocks.

Code Benzelle. Per Dozen

No. 1964—2¼ In. Bronze Metal Case, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Bronze Metal Keys, ... $14.00

Weight, 7 lbs. Per Dozen.

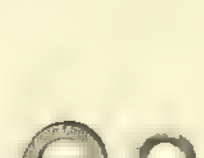
Code Benzylene. Per Dozen

No. 1964C—2¼ In., Bronze Metal Case, Wrought Bronze Chain, Bronze Metal Spring Shackle, 3 Secure Levers, 2 Bronze Metal Keys, . $16.00

Weight, 9 lbs. Per Dozen.

Half Dozen In a Box

Full Size Cuts



Code Bentarchle Per Dozen

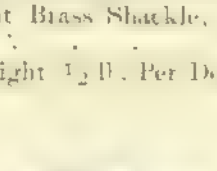
No. 0969½A—⅝ In. Nickel Plated Wrought Brass Case, Nickel Plated Wrought Brass Shackle, 1 Brass Key, ... $1.75

Weight ½ lb. Per Dozen.

Code Bentisme Per Dozen

No. 0971½—⅞ In., Nickel Plated Wrought Brass Case, Nickel Plated Brass Spring Shackle 1 Brass Key, $2.00

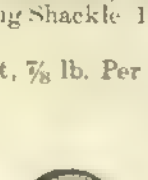
Weight, ⅞ lb. Per Dozen.



Code Beowulf. Per Dozen

No. 0970½—⅝ In. Nickel Plated Wrought Brass Case, Nickel Plated Brass Spring Shackle, 1 Brass Key. . $1.75

Weight, ¾ lb. Per Dozen.



Code Bepaulian Per Dozen

No. 101—¾ In. Aluminum Case, Aluminum Spring Shackle, 1 Flat Steel Key, ... $3.00

Weight, ½ lb. Per Dozen.

One Dozen In a Box

Padlocks.

Full Size Cuts.

Code Bepale ide. Per Dozen

No. 0900—⅝ In., Wrought Brass Case, Wrought Brass Spring Shackle, 1 Flat Steel Key, ... $2 25

Weight, ¾ lb. Per Dozen.

Code Bepeare. Per Dozen

No. 902C—1 In., Japanned Steel Case, with Bright Steel Spring Shackle, 1 Flat Steel Key $3.00

Weight, 1½ lbs. Per Dozen.

Code Bepearling. Per Dozen

No. 724—1⅛ In., Bronze Metal Case without Chain, Bronze Metal Spring Shackle, 1 Flat Steel Key, $4 00

Code Bepeinside

No. 7240—1⅛ In., Bronze Metal Case, with 16 In. Chain, Bronze Metal Spring Shackle, 1 Flat Steel Key 5 10

Weight, 1¾ lbs. Per Dozen.

Code Bepainken. Per Dozen

No. 30—⅝ In., Wrought Brass Case, Bright Steel Spring Shackle, 1 Iron Key, ... $4.50

Weight, ¼ lb. Per Dozen.

Code Bepinking

No. 31—¾ In., Wrought Brass Case, Bright Steel Spring Shackle, 1 Iron Key, ... 4.50

Weight, ½ lb. Per Dozen.

Code Bepinkset.

No. 32—1 In., Wrought Brass Case, Bright Steel Spring Shackle, 1 Iron Key, 5.00

Weight, 1 lb. Per Dozen.

Code Bepainten. Per Dozen

No. 70—⅝ In., Nickel Plated Wrought Brass Case, Bright Steel Spring Shackle 1 Iron Key $5 75

Weight, ¼ lb. Per Dozen

Code Bepaintet

No. 71—¾ In. Nickel Plated Wrought Brass Case, Bright Steel Spring Shackle, 1 Iron Key, ... 5.75

Weight, ½ lb. Per Dozen.

Code Bepainuel.

No. 72—1 In., Nickel Plated Wrought Brass Case, Bright Steel Spring Shackle, 1 Iron Key, . . . 6 25

Weight, 1 lb. Per Dozen.

One Dozen in a Box.

Padlocks.

Half Size Cuts

Code Repotende. Per Dozen

No. 843 1½ In., Bower Barff Finish Wrought Steel Case, Nickel Plated Wrought Steel Shackle, Pin Tumblers, Bronze Inside Work, 2 Nickel Plated Flat Steel Keys, . . . $14.00
Weight, 2½ lbs. Per Dozen.

Code Repotende. Per Dozen

No. 853—2 In., Bower Barff Finish Wrought Steel Case, Nickel Plated Wrought Steel Shackle, Pin Tumblers, Bronze Inside Work, 2 Nickel Plated Flat Steel Keys, . . . $17.50
Weight, 5 lbs. Per Dozen.

Code Repowdered. Per Dozen

No. 803 1½ In., Bower Barff Finish Iron Case, Bronze Metal Spring Shackle, 4 Pin Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys, . . . $11.00
Weight, 4 lbs. Per Dozen.

Code Repowdered. Per Dozen

No. 805—2 In., Bower Barff Finish Iron Case, Bronze Metal Spring Shackle, 4 Pin Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys, . . . $14.00
Weight, 7 lbs. Per Dozen.

Code Repraise. Per Dozen

No. 8454—2 In., Bower Barff Finish Steel Case, Bower Barff Finish Steel Spring Shackle, 4 Pin Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys, ... $19.00
Weight, 6 lbs. Per Dozen.

Code Repraising. Per Dozen

No. 84054—2 In., Bower Barff Finish Steel Case, with Steel Chain, Bower Barff Finish Steel Shackle, 4 Pin Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys, ... $23.00
Weight, 7¼ lbs. Per Dozen.

Half Dozen in a Box.

Padlocks.

Code Repraying. Per Dozen

No. 813—1 In. Bronze Metal Case, Bronze Metal Spring Shackle, 3 Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys . . $17.00

Weight 1½ lbs. Per Dozen.

Code Repaired

No. 823—1¼ In. Bronze Metal Case, Bronze Metal Spring Shackle, 3 Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys, . . 19.00

Weight, 2 lbs. Per Dozen.

Code Repaired. Per Dozen

No. 853 2 In., Bronze Metal Case, Bronze Metal Spring Shackle, 4 Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys . . $28.00

Weight 8 lbs. Per Dozen.

Code Repaired

No. 863 2¼ In. Bronze Metal Case, Bronze Metal Spring Shackle, 4 Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys . . 35.00

Weight, 11 Lbs. Per Dozen.

Code Required. Per Dozen

No. 8013 1 In. Bronze Metal Case, with 15 In. Brass Safety Chain, Bronze Metal Spring Shackle, 3 Tumblers, 2 Nickel Plated Flat Steel Keys, ... $22.00

Weight, 2 lbs. Per Dozen.

Half Dozen in a Box

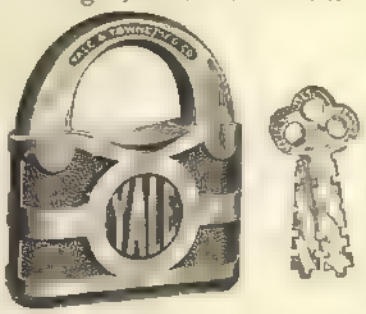
Code Required. Per Dozen

No. 833—1½ In. Bronze Metal Case, Bronze Metal Spring Shackle, 3 Tumblers, 144 Changes, 2 Nickel Plated Flat Steel Keys. $22.00

Code Required. Weight 4 Lbs. Per Dozen

No. 843—1¾ In., Bronze Metal Case, Bronze Metal Spring Shackle, 4 Tumblers, 144 Changes, 2 Nickel Plated Flat Steel keys, . 25.00

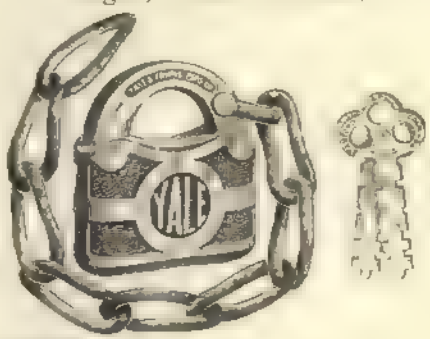
Weight, 6 lbs. Per Dozen.



Code Required Per Dozen

No. 873 2½ In. Bronze Metal Case, Bronze Metal Spring Shackle, 4 Tumbler, 144 Changes, 2 Nickel Plated Flat Steel keys, . . $32.00

Weight, 14 lbs. Per Dozen



Code Required. Per Dozen

No. 8053 2 In., Bronze Metal Case with Steel Chain, Bronze Metal Spring Shackle, 4 Tumblers, 2 Nickel Plated Flat Steel Keys. . $32.00

Weight 10 Lbs. Per Dozen

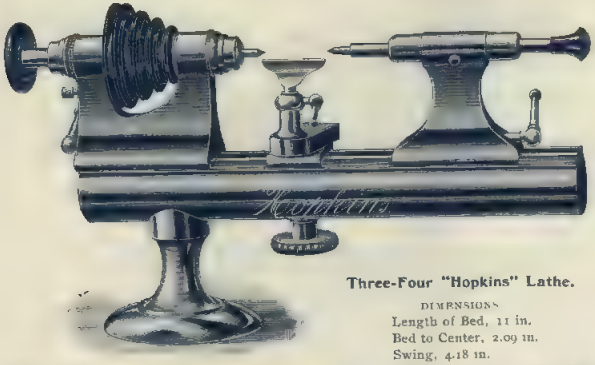
Code Required.

No. 8073—2½ In., Bronze Metal Case with Steel Chain, Bronze Metal Spring Shackle, 4 Tumblers, 2 Nickel Plated Flat Steel Keys . 58.00

Weight, 16 lbs. Per Dozen

BAKER & HAMILTON

HOPKINS 3x4 LATHE.



Three-Four "Hopkins" Lathe.

DIMENSIONS
Length of Bed, 11 in.
Bed to Center, 2.09 in.
Swing, 4.18 in.

No 3889 Hopkins 3x4 Lathe, 10 Chuck Combination, Complete $30 00

An exceptional offer to buy the best built American Lathe, at a price within the reach of all The **Hopkins** 3x4 Lathe and Combination consists of Lathe, 10 Chucks, 6 Cement Brasses (illustrated above) and Leather Belting

Additional Wire or Wheel Chucks 75 cents each.

This Lathe has **Hard Spindles** and **Hard** running **Bearings** and we guarantee perfection in all its details

The Chucks are made of best steel with greatest care to insure accuracy in regards to hole body, thread and face All the threads of Chucks are cut on a Lathe constructed for the purpose This method assures perfection and is the only method which permits a perfectly centered Chuck The holes in Chucks are ground after being hardened and all parts of the Chucks are ground on machinery especially designed for this purpose.

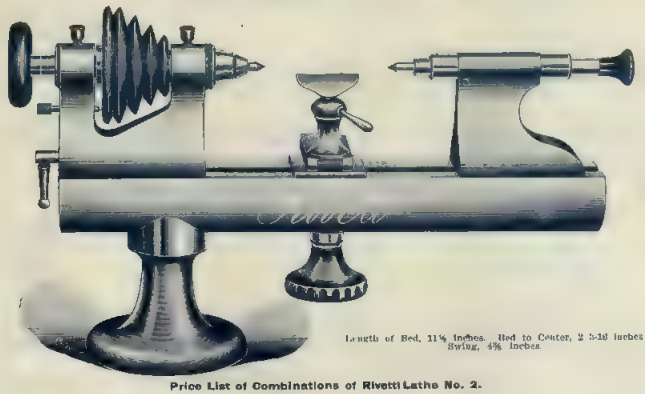
The Hopkins 3x4 Lathe has been on the market for over 30 years and combines the greatest accuracy, durability and beauty of lines.

Lively competition is the prime mover in the production of labor saving devices and in reduced cost of production, and these again permit the reducing of cost to you.

All attachments for above lathes at lowest possible prices, in keeping with "Hopkins" quality.

TOOLS "L."

RIVETT LATHES AND ATTACHMENTS.



Length of Bed, 11⅛ Inches. Bed to Center, 2 5-16 Inches
Swing, 4⅝ Inches.

Price List of Combinations of Rivett Lathe No. 2.

		Rivett Steel Bed New Style
No.	4079.	Lathe, plain, which includes Taper Chuck and its Steel Center, Tailstock Spindle and its Steel Center, Screw Chuck 6 ¼-inch Cement Chucks 5 feet of Round Belting. Price $55 00
No.	4080.	Lathe, plain, less Tailstock, same as above. Price 38 00
No.	4081.	Lathe, as first described above, and 10 Chucks. Chucks any size, Wire or Wheel. Price 42 50
No.	4082.	Lathe as first described above, and 15 Chucks. Chucks any size, Wire or Wheel. Price. 46 25
No.	4083.	Lathe, as first described above, and 15 Wire and 3 Wheel Chucks, 1 Chuck Box with Cover, and Jewel Chuck Chucks any Size. Price..... 49 80

		Rivett Steel Bed, New Style
No.	4084.	Lathe, as first described above, and 23 Wire and 5 Wheel Chucks, 1 Chuck Box with Cover. Chucks any size. Price $50 85
No.	4085.	Lathe, as first described above, and 33 Wire and 5 Wheel Chucks, 1 Chuck Box with Cover. Chucks any size. Price 64 35
No.	4086.	Lathe, as first described above, and 30 Wire and 5 Wheel Chucks, 1 Arbor Chuck, 4 ¼ inch Saws, 1 each 1½ Emery, Copper and Ivory Laps, 1 Chuck Box with Cover, Price 100 00

Price List of Attachments for Rivett Lathe No. 2.

No.	4087.	Arbor Squaring Fixture or Filing Rest, patented $ 7 00
No.	4088.	Belting, per foot, Round, $0.06, Flat 08
No.	4089.	Center Punch 15
No.	4090.	Centers, Steel, Male, 3 sizes, each 25
No.	4091.	Centers, Steel, Female, 3 sizes each 25
No.	4092.	Countershaft, patented 7 00
No.	4093.	Countershaft, patented, Overhead Attachment 5 00
No.	4094.	Countershaft, plain Single Stand 4 50
No.	4095.	Chucks, Wire, best Steel, Hardened and Ground 75
No.	4096.	Chucks, Screw 1 00
No.	4097.	Chucks, Taper 1 00
No.	4098.	Chucks, for Pivot Drills, Taper Shank to fit Tailstock or Handle 1 00
No.	4099.	Chucks, Wheel 75
No.	4100.	Chucks, Arbors for Saws, Laps, etc..... 2 00
No.	4101.	Chucks, Jewel Center 3.50
No.	4102.	Chucks for Jewelling, Soft Steel, same as used in Watch Factories, stepped for Jewelling..... 45
No.	4103.	Chucks, for Cement Pivoting, Watch Factory style.. 2 75
No.	4104.	Chucks, with Guide for Rounding up Tool 3 50
No.	4105.	Chucks, Face Plate 2 75
No.	4106.	Chucks, Mounting Bench 2 00
No.	4107.	Chucks, Brass Cement, ¼ inch, per dozen.. 45
No.	4108.	Chucks, Brass Cement, ½ inch, per dozen 1 25
No.	4109.	Chucks, Brass Cement, ⅝ inch, per dozen 2 25
No.	4110.	Chucks, Brass Cement, 1 inch, per dozen 3 00
No.	4111.	Chuck Box with Cover. 1 00
No.	4112.	Dogs for Jewelling Rest Spindles 1 75
No.	4113.	Dogs for Face Plate Chucks, small 45
No.	4114.	Dogs for Face Plate Chucks, large 85
No.	4115.	Index Plates according to spaces $0 85 to 2 75
No.	4116.	Jewelling Rest, with Calipers. 20 00
No.	4117.	Jewelling Rest with Calipers and Cross Feed Screw..... 30 00
No.	4118.	Jewelling Rest, extra Spindles, each..... 2.50
No.	4119.	Jewelling Rest Cutters, each..... 25
No.	4120.	Jewelling Head or Pivoting Head with Improved Bearing 10 00
No.	4121.	Laps, Emery 1½ inches 45
No.	4122.	Laps, Boxwood, 1½ inches..... $ 0 45
No.	4123.	Laps, Ivory, 1½ inches $1.35
No.	4124.	Laps, Copper, 1½ inches 1 15
No.	4125.	Laps, Tin, 1½ inches 1 25
No.	4126.	Laps, Steel or Copper, charged with Diamond Powder on both sides, 1½ inches..... 2 50
No.	4127.	Pivot Polisher 13 00
No.	4128.	Pivot Polisher Laps 85
No.	4129.	Rivett Foot Wheel 2 00
No.	4130.	Rounding up Tool, patented 23 00
No.	4131.	Slide Rest, patented, 3 tools, cutting edge on each end 30 00
No.	4132.	Slide Rest Tools, with cutting edge on each end 25
No.	4133.	Slide Rest, "Rivett Special" 17 50
No.	4134.	Saws, each ⅛ in., 80 15, ⅝ in. 80 20 25
No.	4135.	Screw Plates for Brass Cement Chucks 1 25
No.	4136.	Taps for Brass Cement Chucks..... 85
No.	4137.	Tapers, Steel or Brass, 3-16 in. per doz 1 25
No.	4138.	Tapers, Steel or Brass, ¼ in., per doz 1 50
No.	4139.	Tapers, Steel or Brass, ⅜ inch, per doz 2 25
No.	4140.	Tailstock plain 7 00
No.	4141.	Tailstock with Screw 13 00
No.	4142.	Tailstock, Half Open, with Spindle 11 50
No.	4143.	Tailstock, with Traverse 10 50
No.	4144.	Tip over T-Rest 2 50
No.	4145.	Traverse Spindle Grinder..... 25 00
No.	4146.	Traverse Grinder to go on Slide Rest..... 17.00
No.	4147.	Universal Head, Hardened Steel Spindle Bushing, hardened and ground, Patent Jaws, Solid Nickel Plate..... 35 00
No.	4148.	Universal Plate to fit Head, mounted on hard Steel Chuck, Shank hardened and ground, Patent Jaws, Solid Nickel Plate 14.00
No.	4149.	Universal Plate to fit Head mounted on hard Steel Chuck, Shank Hardened and Ground, Cast Iron Plate, plain Jaws 9.00
No.	4150.	Wheel Cutting Attachment, Revolvable Tailstock, with Slide 12 Index Plates. 35 00
No.	4151.	Wheel Cutting Attachment "Rivett Special," 12 Index Plates 23 00

WATCHMAKERS' REPAIRING OUTFIT FOR BEGINNERS.

The tools in this Outfit are all first-class, and practical, and just what is required to start you up in the watch repairing business at a very nominal cost.

$10.00 CASH WITH ORDER.

The Best Outfit

in the Market for the Money

Outfit consists of the following:

1 Set Best English Broaches.
1 Set 6 Nickel Plated Screw Drivers
1 Hollow Pin Vise
1 Clock Screw Driver
1 Four Row Brush
1 Set 6 Assorted Shape Files
1 Set 12 Assorted Drills in Box
1 Rubber [illegible]
1 Set Movement Rests
1 Pair Hand Removing N. P. Tweezers
1 Pair Slim Point N. P. Tweezers
1 Mo[illegible]
1 Pony Case Opener
1 Pair Heavy Jobbing Tweezers
1 Swiss Saw Frame and 1 Doz. Saws
1 [illegible] Stone
1 Watch Oiler
1 Spiral Drill
1 Bottle Oil
1 Mainspring Punch
1 Alcohol Cup.
1 Half Round File
1 Screw Head [illegible]
1 [illegible] Rest
1 Blow Pipe
1 Pair Two Hole Hand Tongs
1 Main Spring Gauge
1 Watch Key
[illegible] Handles
1 Pair Cutting Pliers
1 Hammer and Handle
1 Hollow Pin Vise Small
1 Pair Flat Pliers
1 Bundle Pith
1 Bundle Pegwood
1 Spirit Level for Setting up Clocks
1 Anvil
1 Oil Cup
1 Bench Vise
1 Set of Punches
1 Material Tray
1 Alcohol Lamp

A Careful Examination will Convince you that every Article in this Outfit is a Practical and Useful Tool.

No. 4157 Complete, only. Less 6 per cent for Cash, $10 75

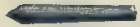
TOOLS "L."

LATHE ATTACHMENTS.

We can furnish Wire Chucks for all Makes and Sizes of American Lathes.

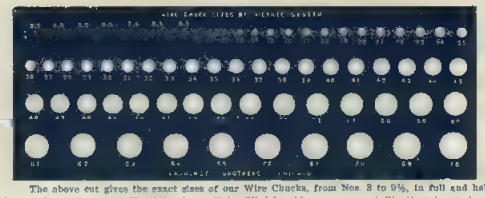
Dale Chucks, Round or Flat Face — each, $0 70

HARD TAPER.
No. 4158. Each $0 25
Finished



HARD FEMALE CENTER.
No. 4159. Each, $0.50
Can be put on Dead Centers
No. 4160. Each, $0 25
Ordinary Female Centers.

TAPER BLANK.
No. 4161. Each, $0.08
Per Dozen, $0.75
Brass or Steel
Size of cut



The above cut gives the exact sizes of our Wire Chucks, from Nos. 3 to 9½, in full and half sizes, and in full sizes to 70. All orders will be filled by this gauge, except Rivett, unless ordered herwise. Rivett Wire Chucks are numbered by Stubbs' Gauge.

CEMENT BRASSES

No. 4162. Each, $0 20
⅜ In.

No. 4163. Each, $0.15
½ Inch

No. 4164. Each, $0.05
⅝ Inch

JEWEL PIVOT DRILL CHUCK.
No. 4165. Each, $0.50
Size 10.

CENTERING TOOL.
No. 4166. Each, $0 50

GEM PIVOT DRILL CHUCK.
No. 4167. Each, $0.50
Size 10.

TRUED PIVOT DRILL CHUCK
No 4168. Each, $0.75
Size 8 and 10

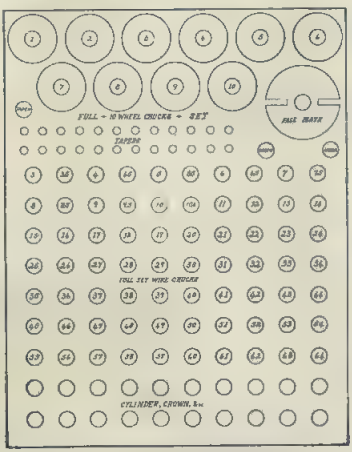
ROLLER CHUCK.
Enlarged Front View

We take pleasure in offering this Chuck to the trade, knowing it to be the best designed Chuck in all the essential features that make a Chuck run true. We are enabled to make the large hole very close to center hole, so small Rollers of any size can be placed right up to Chuck while on the balance, without any danger of breaking Roller Pin thus saving removing Roller. The flat faced Chuck is the truest style one can get for staff work. Nos. 5, 5½, 6, 6½, 7, 7½ are the sizes of staffs above or Roller and are made to fit any Lathe.

No 4169 Set of 6 . . . . per set, $5 00
No 4170 Single Chuck . . each, 1 00

SOFT TAPER CHUCK.
Each
No. 4171 With one Soft Taper. $1.00

TAPER CHUCK.
No 4172 Hard . . . . . each, $2 50



NICELY FINISHED BIRCH CHUCK BLOCK.

This Block fits Bench Drawer of Jessop and Roseberg Benches. Dimensions of block, 18¼x8½ inches. The holes are arranged so that the end can be cut off, if desired, to suit the number of chucks one has.

No. 4173 Price of Block . . . . . each $0.50
No 4174 With Nicely Finished Hard Wood Cone to fit it . 2 25

With an order of 20 Chucks the Block is given free.

With an order of Chucks from 3 to 50 or 37 Wire Chucks and 10 Wheel Chucks we will give the Box and Blocks free.

No. 4175. Per Set of 6 $5.00

No 4176 Each, $1.00

This Chuck fits a long fine wax cut shows sectional view of our Cylinder Wire Chuck for turning lower pivot on cylinder without wax. It is very convenient, and turns pivot true with cylinder. Nos. 8, 9, 10, 11, 12 and 13 take all sizes and same chucks can also be used for staff work

SCREW CHUCK.

No. 4177. Each, $1.00
Made to Fit any Lathe

JEWELING CHUCK, SOFT STEEL.
No. 4178. With Step. Each, $0 60
Without Step. Each, $0.50

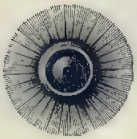
The above Chuck is the same as is used for jeweling in all watch factories. This Chuck is one of the most useful in the watchmakers' outfit as when the step wears out, or gets out of true, he can turn it down and true it up again himself, as the Chuck is soft; whereas in the Wire Chucks the hardening is apt to throw the step out of true, and no maker of Chucks pretends to grind the step

TOOLS " L."

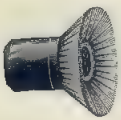
"OUR SPECIAL" IMPROVED POLISHING LATHE.

The Only Lathe of This Kind Having the Patent Dust-Catcher.

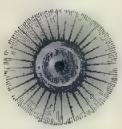
Price Complete With All Attachments as Illustrated $6.25. Price Without Attachments, $4.75.



Three Row Wheel Brush



Inside Case Brush



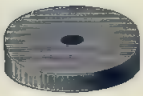
Two Row Wheel Brush

Cotton Ring Buff

Felt Ring Buff

Cotton Wheel Buff

Cotton Case Buff



Emery Wheel

Felt Buff

OUR SPECIAL Lathe is completely and thoroughly finished in every part, has steel spindles and babbitt bearings. The boxes are made adjustable with screws, so that they can be tight [illegible]

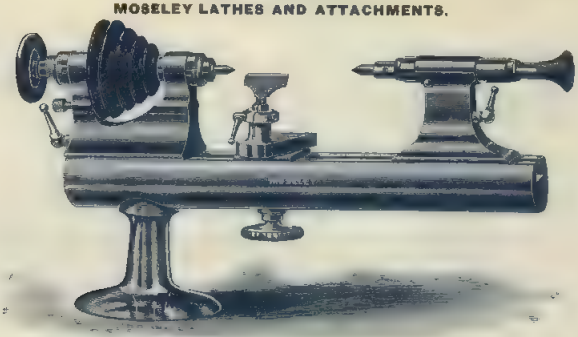
Lathe is furnished with 2½ lb. grooved wheel and round belting.

No. 4320. Lathe, complete, with Attachments, as illustrated, and Patent Dust Catcher [illegible]omplete, $6 25

No. 4321. Lathe, without Attachments and Patent Dust Catcher.... [illegible]omplete. 4.75

TOOLS "L."

MOSELEY LATHES AND ATTACHMENTS.



DIMENSIONS OF GENUINE MOSELEY LATHES.

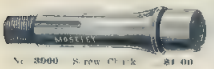
No. 2 Lathe. Bed to Center, 2 00 Inches. Swing, 4 00 Inches.
No. 2 Lathe. Length of Bed, 13.00 Inches. Diameter, 1 75 Inches.

No. 1x2 Lathe. Bed to Center, 1 75 Inches. Swing, 3 50 Inches.
No. 1x2 Lathe. Length of Bed, 9 50 Inches. Diameter 1 50 Inches

Price List of Combinations of Moseley Lathes and Attachments

No. 3800	2 Chuck Combination, consisting of Lathe with Taper Chuck, Screw Chuck, 6½ Inch Cement Chucks, Chuck Box and Belting	$30 00
No. 3801	10 Chuck Combination, consisting of 2 Chuck Combination with 8 Wire Chucks	35 00
No. 3802	12 Chuck Combination, consisting of 2 Chuck Combination with 10 Wire Chucks	36 00
No. 3803	17 Chuck Combination, consisting of 2 Chuck Combination with 15 Wire Chucks	40 00
No. 3804	22 Chuck Combination, consisting of 2 Chuck Combination with 20 Wire Chucks	44 00
No. 3805	32 Chuck Combination, consisting of 2 Chuck Combination with 30 Wire Chucks	51 00
No. 3806	42 Chuck Combination, consisting of 2 Chuck Combination with 40 Wire Chucks	59 00
No. 3807	50 Chuck Combination, consisting of 2 Chuck Combination with 48 Wire Chucks, 6 Wheel Chucks and Arbor Chuck	70 00

No. 3899. Taper Chuck — Each, $1 00



No. 3900. Screw Chuck — $1 00

No. 3901. Crown Chuck — $1 25

No. 3902. Arbor Chuck — $1 25

No. 3919. L Rest — Each, $0 75
For Use with Face Plate

No. 3920. Fluted Center — Each, $0 15

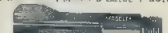
No. 3921. Blank Center — Each, $0 08

PIVOT POLISHER,
Including 5 Laps, 2 Tapers, and Lap Truing Chuck. Each.

No. 3903	For No. 1 Lathe	$42 00
No. 3904	For No. 1x2 Lathe	42 00
No. 3905	For No. 2 Lathe	42 00
No. 3906	For No. 3 Lathe	50 00

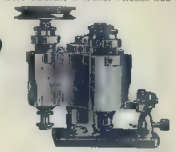
GENUINE MOSELEY SLIDE REST

No. 3915	For No. 1 Lathe	$40 00
No. 3916	For No. 1x2 Lathe	40 00
No. 3917	For No. 2 Lathe	40 00
No. 3918	For No. 3 Lathe	50 00



Sectional View of Shoulder Chuck

For No. 1 Sizes 0 to 60
No. 3922. Each, $1 00
For No. 1x2 or No. 2 Sizes 31 to 80
No. 3923. Each, $1 00
For 1x2 or No. 2 Sizes 61 to 80
No. 3924. Each, $1 25
For No. 3. Sizes 05 to 95
No. 3925. Each, $2 00



WHEEL AND PINION CUTTER.

		Each
No. 3907.	For No. 1 Lathe	$55 00
No. 3908.	For No. 1x2 Lathe	55 00
No. 3909.	For No. 2 Lathe	55 00
No. 3910.	For No. 3 Lathe	55 00

CEMENT CHUCK.

No. 3926. Each, $0 05

		Each
No. 3927.	⅝ Inch	$0 15
No. 3928.	¾ Inch	17

No. 1 Wire Chuck. Actual Size

No. 3911. Nos. 8 to 38 — Each, $0 75

No. 1½ Wire Chuck. Actual Size

No. 3912. Nos. 3 to 50 — $0.75

No. 2 Wire Chuck. Actual Size

No. 3913. Nos. 8 to 50 — Each, $0 75

No. 3 Wire Chuck. Actual Size

No. 3914. Nos. 3 to 61 — Each, $1 50

No. 3929. Wire Chuck. — Each, $0 75

No. 3886. Stepping Device, with 6 Points — $1 00

With this Device any Wire Chuck will accurately serve as a Step Chuck. Given with every 20 or more Wire Chucks. Rests in Chuck and should be slightly less than diameter of work. Tightens in rear of Draw in Spindle. Turning Nut on End regulates depth of Step

MOSELEY LATHE, CHUCKS, ATTACHMENTS AND FIXTURES.

			No 1	No. 1x2.	No. 2.	No 3.
No 3930	Lathe, including Screw Chuck and 6 , inch Cement Chucks and Belt				$30 00	$40 00
No. 3931	Lathe, without Tailstock, including Screw Chuck with 6 ¾-inch Cement Chucks and Belt				24 00	
No 3932	Slide Rests. Universal Head		$35 00	35 00	35 00	45 00
No 3933	Slide Rests. Universal Face Plate on Chuck		8 00	8 00	8 00	18 00
No. 3933	Slide Rests. Universal Face Plate on Chuck		40 00	40 00	40 00	50 00
No 3934	Slide Rests. Slide Rest, Style 1, with Cutters		25	25	25	30
No 3935	Slide Rests. Taper and Square Cutters for Slide or Caliper Rest		35 00	35 00	35 00	45 00
No. 3936	*Jeweling or Caliper Rest		38 00	38 00	38 00	50 00
No 3937	Jeweling or Caliper Rest with Latera. Screw		2 00	2 00	2 00	3 00
No. 3938	Extra Jeweling Rest Spindles		4 00	4 00	4 00	5 00
No. 3939	Extra Jeweling Rest Spindles with Dogs (Time Savers)		42 00	42 00	42 00	50 00
No 3940	Pivot Polishers. *Pivot Polisher, with 5 Laps and 2 Tapers, including Special Chuck for truing up Laps		40	40	40	40
No. 3941	Pivot Polishers. Pivot Polisher Laps, all kinds		2 50	2 50	2 50	2 50
No 3942	Pivot Polishers. Pivot Polisher Laps on Taper (Diamond), ⅝ Diameter		1 00	1 00	1 00	1 00
No. 3943	Pivot Polishers. Pivot Polisher Laper on Taper (Emery), ⅝ Diameter		3 00	3 00	3 00	4 00
No 3944	Pivot Polishers. Special Chuck for Truing Pivot Polisher Laps		3 00	3 00	3 00	3 00
No. 3945	Extra 4 inch Pulley for Counter to Drive Pivot Polisher or Wheel Cutter		7 00	7 00	7 00	7 00
No 3946	Idler Pulleys and Stand to Drive Pivot Polisher and Wheel Cutter		42 00	42 00	42 00	50 00
No 3947	Wheel Cutters. *Wheel and Pinion Cutting Fixture, Style 1	Six Spindles,	75 00	75 00	75 00	75 00
No 3948	Wheel Cutters. Wheel and Pinion Cutting Fixture, Style 2	Three Spindles,	55 00	55 00	55 00	55 00
No. 3949	Wheel Cutters. Wheel and Pinion Cutting Fixture, Style 3	Single Spindles,	22 50	22 50	22 50	22 50
No 3950	Wheel Cutters. Wheel and Pinion Cutting (Angle) Fixture, Style 3	Single Spindles,	25 00	25 00	25 00	25 00
No. 3951	Wheel Cutters Indexes, 60 Notches and Less		50	50	50	75
No. 3952	Wheel Cutters. Index Blanks, Center Hole and Diameter to Size		15	15	15	25
No 3953	Wheel Cutters. Latch for Indexes	each,	3 50	3 50	3 50	4 50
No. 3954	Wheel Cutters. Rounding-up Cutters and Cutter Guides	each,	1 00	1 00	1 00	1 00
No. 3955	Wheel Cutters. Round and Flat Bottom Cutters	each,	1 00	1 00	1 00	1 00
No 3956	Wheel Cutters. Fly Cutter Arborn		2 50	2 50	2 50	2 50
No 3957	Wheel Cutters. Fly Cutters		1 00	1 00	1 00	1 00
No 3958	Steel Centers, Pointed		15	15	15	25
No 3959	Steel Centers, Hollow		20	20	20	
No 3960	Steel Bank Centers		08	08	08	
No 3961	Chucks. Wire Chucks, Steel		75	75	75	1 50
No. 3962	Chucks. Wheel Chucks, Steel or Brass Face		75	75	75	1 50
No 3963	Chucks. Crown Chucks (New Style)		1 25	1 25	1 25	2 00
No 3964	Chucks. Arbor Chuck	each	1 25	1 25	1 25	1 75
No 3965	Chucks. Screw and Taper Chucks		1 00	1 00	1 00	1 50
No. 3966	Chucks. Shoulder Chucks (above No 60, $1 25 each		1 00	1 00	1 00	2 00
No 3967	Chucks. Cylinder Sub Chucks (4 Sizes)	each,	75	75	75	75
No 3968	Chucks. Dead Center Chuck and Whirl		3 00	3 00	3 00	4 50
No 3969	Chucks. Taper Chucks with Face Plate		3 00	3 00	3 00	4 50
No. 3970	Chucks. Step Spindle in Chuck		12 00	12 00	12 00	12 00
No. 3971	Chucks. Bench Chuck, Mounted		10 50	10 50	10 50	11 00
No 3972	Chucks. Mounting Chucks (All Styles)		2 50	2 50	2 50	2 75
No. 3973	Chucks. Step Spindle Chuck		15 00	15 00	15 00	20 00
No. 3974	Step Spindle Head		10 00	10 00	12 00	14 00
No 3975	Traverse Spindle Tailstock		15 00	15 00	15 00	18 00
No. 3976.	Screw Tailstock		7 00	7 00	7 00	10 00
No 3977.	Regular Tailstock		6 50	6 50	6 50	12 00
No 3978.	Counter shaft		1 00	1 00	1 00	1 00
No. 3979.	Stepping Device		25 00	25 00	25 00	30 00
No. 3980.	Milling Fixture, style 1		15 00	15 00	15 00	15 00
No. 3981	Traverse Spindle Grinder		9 00	9 00	9 00	10 00
No. 3982	Arbor Squaring Fixture, style 1.		4 00	4 00	4 00	4 50
No. 3983	Arbor Squaring Fixture, style 2.				3 50	
No. 3984.	Tip-Over Hand Rest				2 00	
No. 3985.	Hand Rest					
No 3986	Cement Chucks	¾ inch. 06c; ½ inch. 15c; ⅝ inch.				25
No 3987	Steel Blank Tapers	½ inch. 08c; ¼ inch 20c; ⅝ inch				40
No 3988.	Saws, 4 different in thicknesses	¼ inch, 15c; ¾ inch 20c; 1 inch.				25
No. 3989.	Saws, 4 different thicknesses, ground	½ inch, 25c ⅝ inch, 35c, 1 inch				45
No. 3990	Belting, per foot	No 1, 06c, No 2 08c, No. 3,				10
No. 3991	Foot Wheels	30 lb $8 00 40 lb. $9 00 50 lb.				10 00
No 3992.	Tin and Copper Laps on Tapers. ½ inch, $2 00	Same not mounted				1 50
No 3993.	Iron Laps on Tapers. 1¼ inch, 1 75	Same not mounted				1 25
No 3994.	Box Wood Laps on Tapers. 1½ inch, 1 25	Same not mounted				75
No 3995	Emery Laps on Tapers 1½ inch, 1 25	Same not mounted				75
No 3996.	Copper Laps on Tapers. 1½ inch, Charged with Diamond Powder					3 00
No. 3997	Oil Stone Laps on Tapers. 1¼ inch, 4.00	Mounted on Chuck				5 25
No. 3998	Universal Dog					1 00
No 3999	36 Jewelers' Twist Drills in case					1 00
No 4000	Dressed Tube for Hand Rest					1 00
No. 4001	Drilling Plate for Tail Spindle					75
No 4002	Tempered Wire, 51 sizes in box					25
No 4003	T and L Graver Rest				each	75
No. 4004	Filing Rest to go in Hand Rest, by which wire can be filed rapidly and correctly					1 00

*Send for descriptive card how to use them.

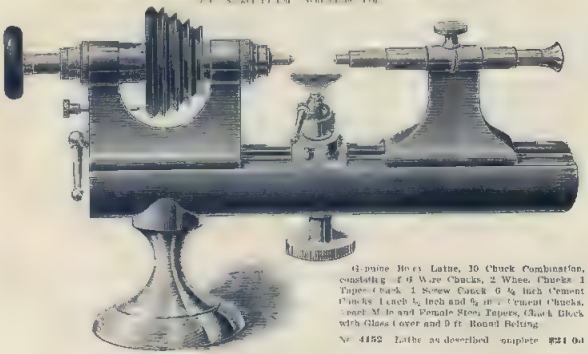
The above Price List issued July 15, 1904, by Moseley Lathe Co

CHUCKS.

Good Chucks and plenty of them, are what the Watchmakers and Watch Repairers need to do their accurate work correctly and most rapidly in order to meet the competition of others in these days of high pressure. We have a complete stock of the Genuine Wire and Wheel Chucks.

GENUINE C. BOLEY HARD LATHE.

Chucks and all Attachments Interchangeable with Moseley or Webster Whitcomb Lathes
No. 3 Swing Full Length Between Centers

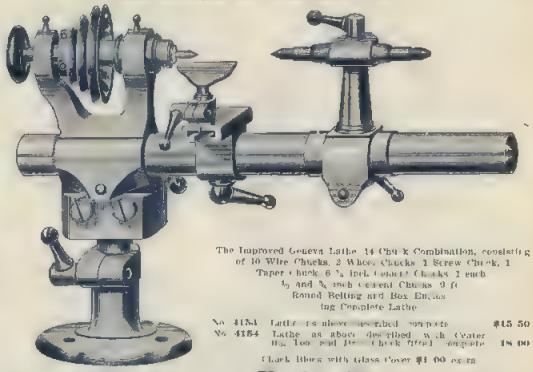


Genuine Boley Lathe, 10 Chuck Combination, consisting of 6 Wire Chucks, 2 Wheel Chucks 1 Taper Chuck 1 Screw Chuck 6 ¾ inch Cement Chucks 1 inch and ⅝ inch Cement Chucks, 1 set Male and Female Steel Tapers, Chuck Block with Glass Cover and 9 ft. Round Belting

No. 4152 Lathe as described complete **$24 00**

THE IMPROVED GENEVA LATHE.

Chucks Interchangeable with Webster Whitcomb Lathe



The Improved Geneva Lathe 14 Chuck Combination, consisting of 10 Wire Chucks, 2 Wheel Chucks 1 Screw Chuck, 1 Taper Chuck 6 ¾ inch Cement Chucks 1 inch ⅝ and ¾ inch Cement Chucks 9 ft Round Belting and Box Fitting Complete Lathe

No. 4154 Lathe as above described complete **$15 50**
No. 4154 Lathe as above described with Center Rest Tool and Drill Chuck fitted complete **18 00**

Chuck Block with Glass Cover **$1 00** extra

Chuck Block with Glass Cover

2 Wire Chucks. Screw Chuck. Taper Chuck

6 Wire Chucks.

6 ¾ inch Cement Chucks

⅝ inch Cement Chuck ⅝ inch Cement Chuck.

1 Steel Center

2 Steel Centers

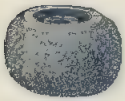
Attachments for Boley Lathes are Interchangeable with Moseley or Webster Whitcomb Lathes of SAME SIZE and will Interchange with Moseley or Webster Whitcomb Lathes

When Purchasing Additional Chucks for above Lathes, we recommend the purchase of the Drill Chuck

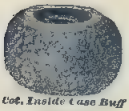
TOOLS "L."

"OUR SPECIAL" IMPROVED POLISHING LATHE WITH PATENT DUST-CATCHER.

Price Complete With All Attachments, $7.75. Price Without Attachments, $5.75.

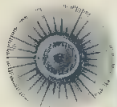


Large Cotton Buff.



Cot. Inside Case Buff

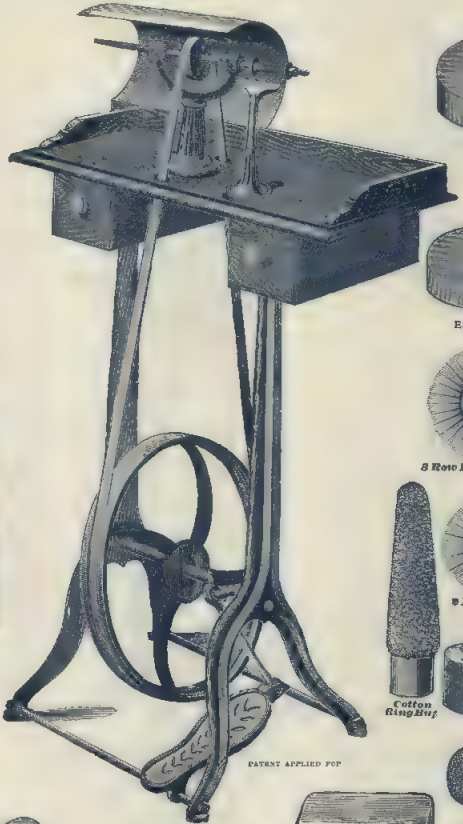
4 Row Bristle Wheel



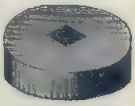
3 Row Bristle.

Felt Ring Buff

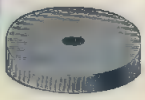
Inside Case Brush.



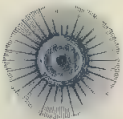
PATENT APPLIED FOR



Felt Buff

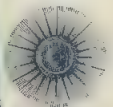


Emery Wheel

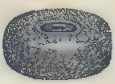


3 Row Bristle Wheel

Cotton Ring Buff



3 Row Bristle.



Small Cot. Buff.

Wrench.

Felt Inside Case Buff

Circular Saw.

6 Drills, Assorted.

OUR SPECIAL Lathe is constructed and finished in the best possible manner. Has hardwood table with two drawers and Adjustable Hand Rest and ted Bpics

PATENT DUST CATCHER Lathe is furnished with a 2½ lb Grooved Wheel and Round Bolting The Head has a Steel Spindle running in Adjustable Babbit

No. 4322 Price, Complete, with all Attachments as Illustrated and Patent Dust Catcher $7 75
No 4533 Lathe, with Hand Rest and Bolting 5 75

Crated and Delivered Free on Board Cars at Chicago.

TOOLS "L."

POLISHING LATHES.

POLISHING LATHE.

No. 4308. With Head No. 4285, as shown $6 00
No. 4309. With Head No. 4286..... 6.50

POLISHING LATHE.

No. 4310. With Head No. 4287 as shown $7 25
No. 4311. With Head No. 4288..... 7 00
The above Heads with Split Chucks 50c Extra

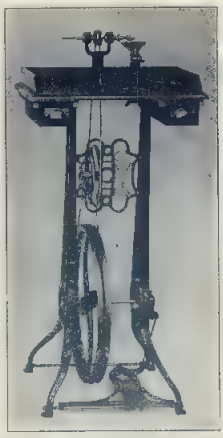
HIGH SPEED POLISHING LATHE.

Table 15x25 Inches. Drive Wheel 9 Inch Diameter
Pulleys 4 and 8 Inch Diameter
No. 4312 Complete ..... each $14 00
Lathe with Extra Large Head with Spindle Split by Inch, Flat or Cone Pulley ¾ Inch Drive Wheel and Table size 18x30 Inch
No. 4313 Complete ..... each, $18 00

The Frames of all our Polishing Lathes are made of the best gray iron, finished in Black Japan
The Shafts are of Cold Rolled Steel

BALL BEARING POLISHING LATHE.

[illegible] Size 12x35 Inches, with Head [illegible] and with Ball Bearings [illegible] by Guards. Ball Bearings [illegible] Cups and Cones are protected from the Emery Dust. The Bearings [illegible] Ball Retainers and the complete Bearing is protected from dirt and dust by polished brass caps
No. 4314. Ball Bearing..... ..... $11 60



NEW HIGH SPEED POLISHING LATHE

[illegible] Inches Wheels [illegible] and Inches [illegible] Pulleys [illegible] Inch Diameter [illegible] Pulleys to the Shaft [illegible] Pulleys to the Spindle [illegible] Pulleys [illegible] Inches [illegible] Inches [illegible] Inches [illegible] Inches [illegible] This [illegible] Lathe [illegible] Head [illegible] Spindle when [illegible] Head [illegible] Spindle when [illegible] Head [illegible] Spindle when

WEBSTER-WHITCOMB LATHE AND ATTACHMENTS.

WEBSTER-WHITCOMB LATHES HAVE HARD SPINDLES] RUNNING

IN HARDENED STEEL BUSHINGS. PERFECTION IS GUARANTEED.

SIZE OF LATHE

Webster Whitcomb. Length of Bed, 11 inches. Extra Length of Bed, $2 00 per inch.

Bed to Center 1.97 inches.

Swings, 3.94 inches.

Price List of Combinations of Webster-Whitcomb Lathes.

We furnish Tip-over Hand Rest with W W Lathes without Extra Charge

No. 4005. Lathe, which includes Taper Chuck, Screw Chuck, 6 ¼-in Cement Chucks, 9 ft. Round Belting and Tip-over Hand Rest $20 00

No. 4006. Lathe, less Tailstock, same as above, except no Tailstock 23 00

No. 4007. Lathe, as first described above, and 6 Wire and 2 Wheel Chucks (10 Chucks) 35 00

(Size of Wire Chucks, Nos. 6, 8, 10, 12, 16, 40; Wheel Chucks Nos. 2, 4).

No. 4008. Lathe, as first described above, and 10 Wire Chucks (12 Chucks) 30 50

(Size of Wire Chucks Nos. 5, 6, 7, 8, 9, 10, 12, 16, 20, 40).

No. 4009. Lathe, as first described above, and 15 Wire Chucks (17 Chucks) 44 25

(Size of Wire Chucks, Nos. 4, 5, 6, 7, 8, 9, 10, 12, 16, 20, 24, 30, 34, 40 50

No. 4010. Lathe, as first described above, and 20 Wire Chucks (22 Chucks) $44 00

(Size of Wire Chucks Nos. 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 34, 40 50)

No. 4011. Lathe, as first described above, and 30 Wire Chucks (32 Chucks) 51 50

(Size of Wire Chucks, Nos. 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 56, 60.

No. 4012. Lathe, as first described above, and 40 Wire Chucks (42 Chucks) 59 00

(Size of Wire Chucks, Nos. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60.

Webster Whitcomb Lathe Attachments.

No. 4013. W.-W. Lathe with Taper Chuck, Screw Chuck, 6½ in Cement Bronzes, and 9 Ft. of Round Belting $20 00

No. 4014. W.-W. Lathe, same as above, less Tailstock .23 00

No. 4015. Countershaft 6 50

No. 4016. Universal Head, patented .. 30 00

No. 4017. Universal Face Plate 9 00

No. 4018. L Rest for Universal Head and Plate 75

No. 4019. Slide Rest, 3 Slides, with Square and Round Tool Holders, 6 Square and 3 Round Tools..... 30.00

No. 4020. Tools for Slide Rest and Jewelling Rest, round or square. .25

No. 4021. Jewelling Rest, with Calipers, Cross Feed Screw, 3 Rings, Tools and 3 Finished Tools... 30 00

No. 4022. Extra Jewelling Rest Spindle 2.00

No. 4023. Dogs for Jewelling Rest Spindle..... 2.00

No. 4024. Pivot Polisher and 4 Laps..... $0.00

No. 4025. Pivot Polisher Lap .. .40

No. 4026. Taper Chuck for Pivot Polishing Laps and Tapers 3 00

No. 4027. Wire Cutting Fixtures goes on a Slided Slide Rest, and 1 Cutter Arbor 40 00

No. 4028. Index Plate, 8 inches diameter, 36 rows of holes, a Nos to 30 and even Nos to 120 also 144, 80 .025, 90

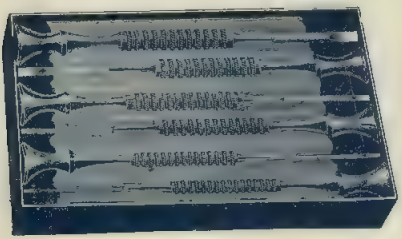
15 00

No. 4029. Index Pointer .. .. ..

TOOLS "L."

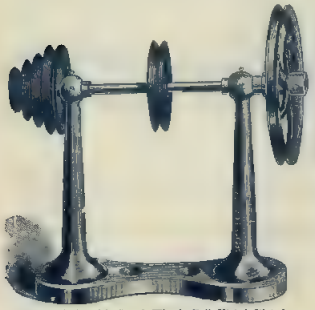
"OUR SPECIAL" LATHE OUTFIT.

Prices Less 6 Per Cent. for Cash.



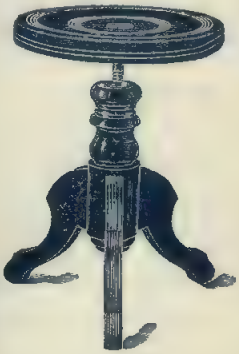
Set of 6 Screw Drivers, in Box, Nickel Plated Handles, Celluloid Heads.

The Perfection Balance Wheel Truing Calipers. No Broken Pivots When the Perfection is Used.



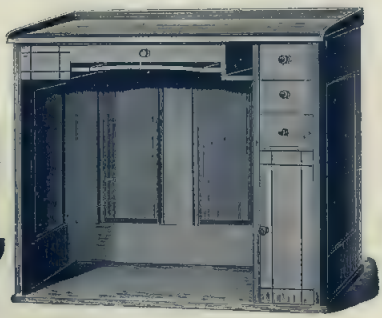
Countershaft with Speed Wheel, Full Nickel Plated

Polishing Tool, with Steel Jaws.



Bench Stool, Oak Finish

Foot Wheel, Weight 20 lbs., Diam. 18 Inches



Oak Finished Work Bench, with 4 Drawers, Chalk Hole, Apron Drawer and Cupboard.

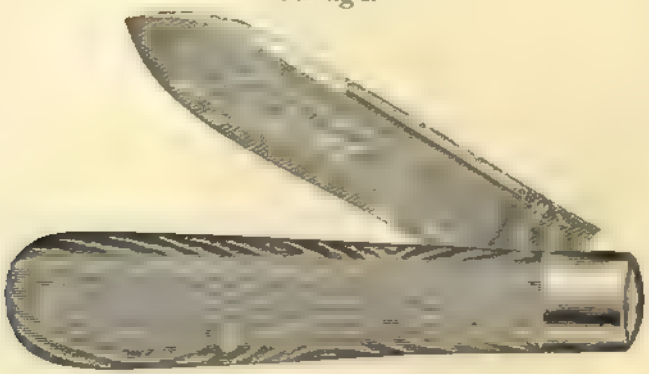
Watch Rack, for 50 Watches. Heavily nickel plated, curved bar, with eagle ornament, gilt trimmings

No. 4155. The above Lathe Outfit with Improved Geneva Lathe No. 4152 Illustrated on Page 633..... complete $32 00
No. 4156. The above Lathe Outfit with Genuine Boley Lathe No. 4153 Illustrated on Page 638..... complete, 39 00

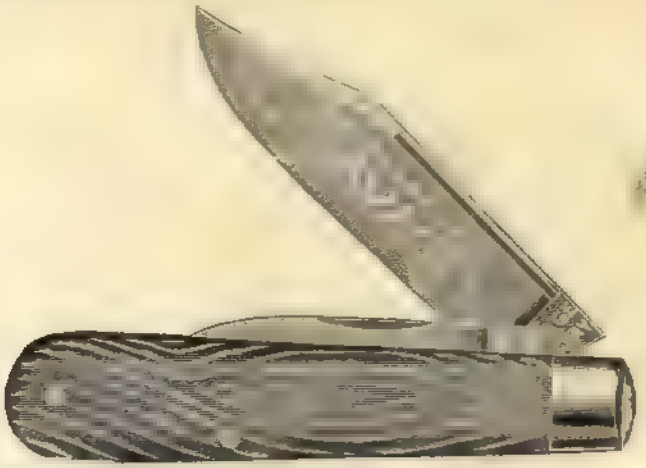
We can Furnish above Outfit with any other make of Lathe Desired at a Correspondingly Low Price.

Pocket Knives.

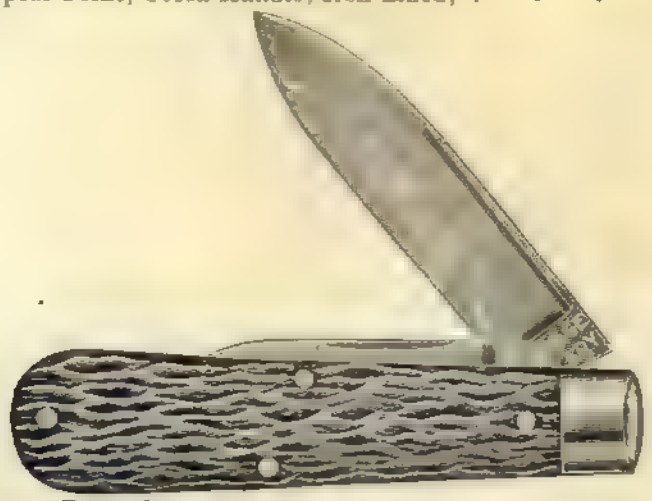
Savage.



	Per Dozen
No. 105 —One Blade, Spear Point, Cocoa Handle, Iron Lined,	$3 50
No. 105C—One Blade, Clip Point, Cocoa Handle, Iron Lined,	3.50
No. 108 —One Blade, Spear Point, Stag Handle, Iron Lined,	4.00
No. 108C—One Blade, Clip Point, Stag Handle, Iron Lined,	4.00



	Per Dozen
No. 205C—Two Blades, Clip Point, Cocoa Handle, Iron Lined,	$4 00
No. 205 —Two Blades, Spear Point, Cocoa Handle, Iron Lined,	4.00

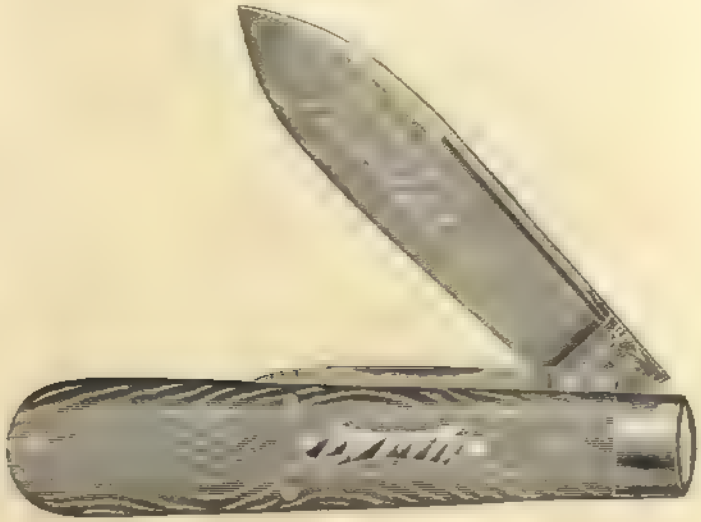


	Per Dozen
No. 208 —Two Blades, Spear Point, Stag Handle, Iron Lined,	$4.00
No. 208C—Two Blades, Clip Point, Stag Handle, Iron Lined,	4.50

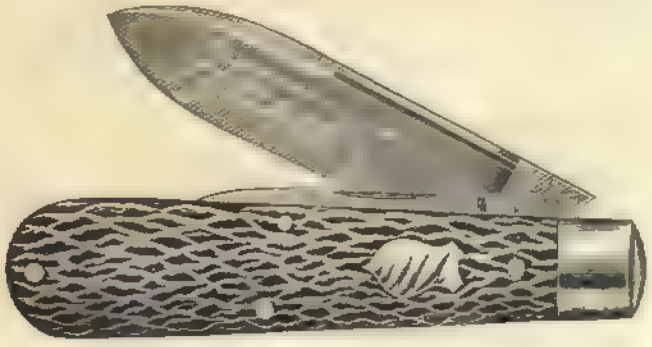
Half Dozen in a Box.

Pocket Knives.

Savage.



	Per Dozen
No. 820 —Two Blades, Spear Point, Cocoa Handle, Brass Lined,	$8 00
No. 823 —Two Blades, Spear Point, Stag Handle, Brass Lined,	8 00
No. 823C—Two Blades, Clip Point, Stag Handle, Brass Lined,	8.00



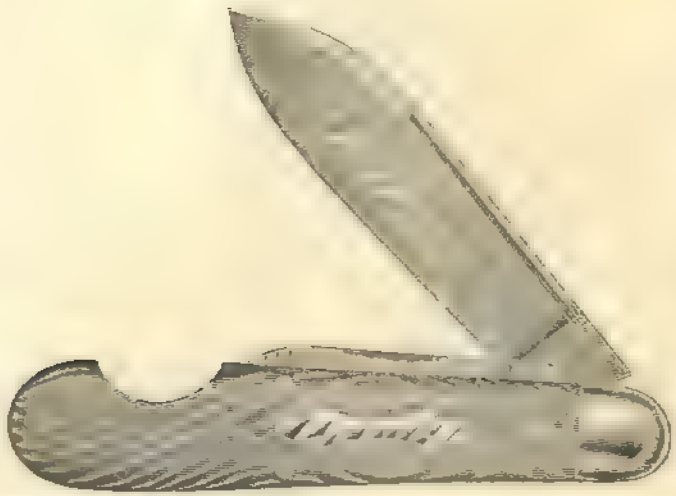
	Per Dozen
No. 1163 —Two Blades, Spear Point, Stag Handle, Brass Lined,	$8 00
No. 1163C—Two Blades, Clip Point, Stag Handle, Brass Lined,	8 00
No. 1160 —Two Blades, Spear Point, Cocoa Handle, Brass Lined,	8 00
No. 1160C—Two Blades, Clip Point, Cocoa Handle, Brass Lined,	8.00

Half Dozen in a Box

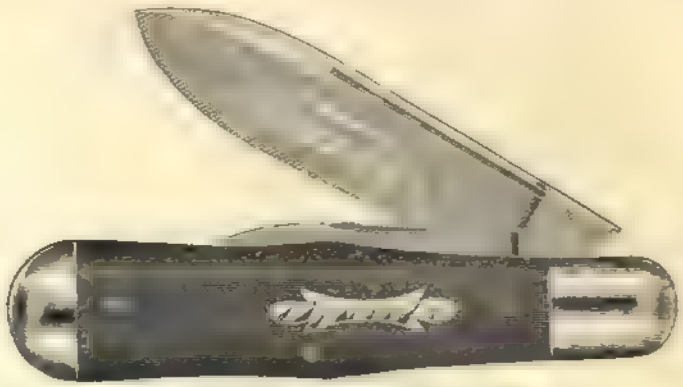
BAKER & HAMILTON

Pocket Knives.

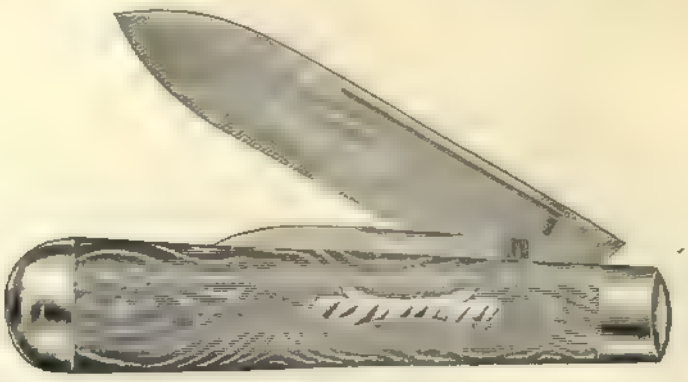
Savage.



No. 785—Two Blades, Cocoa Handle, Brass Lined . . . . . Per Dozen $8.00



No. 1176—Two Blades, Ebony Handle, German Silver Cap and Bolster, Brass Lined, . . . Per Dozen $8.00

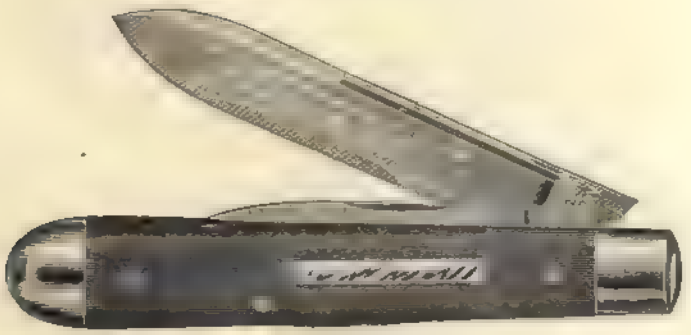


No. 995—Two Blades, Cocoa Handle, German Silver Cap and Bolster, Brass Lined . Per Dozen $8.00
No. 998—Two Blades, Stag Handle, German Silver Cap and Bolster, Brass Lined, 8.00

Half Dozen in a Box

Pocket Knives.

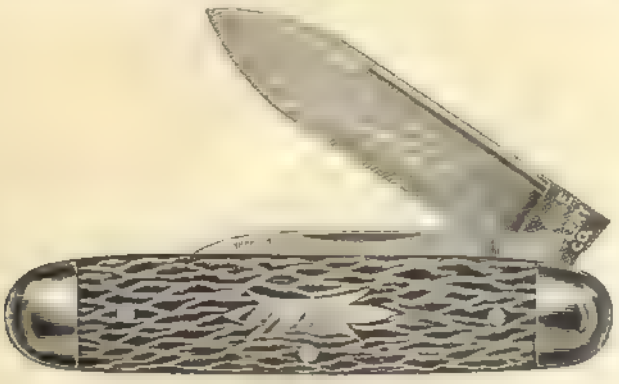
Savage.



Per Dozen

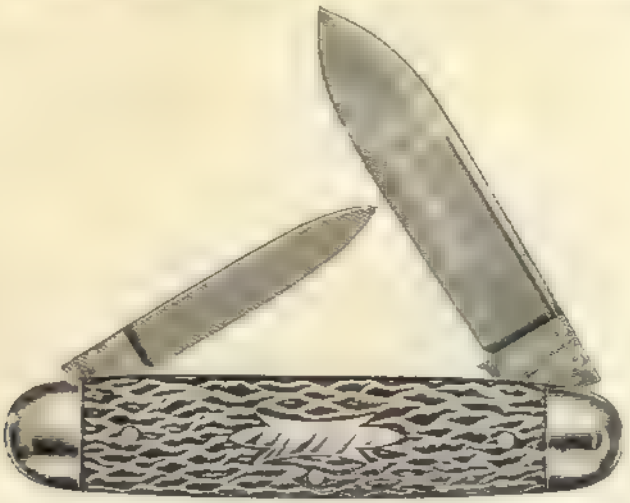
No. 466—Two Blades, Ebony Handle, German Silver Cap and Bolster, Brass Lined, ... $8.00

BAKER & HAMILTON



Per Dozen

No. 898—Two Blades, Stag Handle, German Silver Cap and Bolster, Brass Lined, ... $8.00



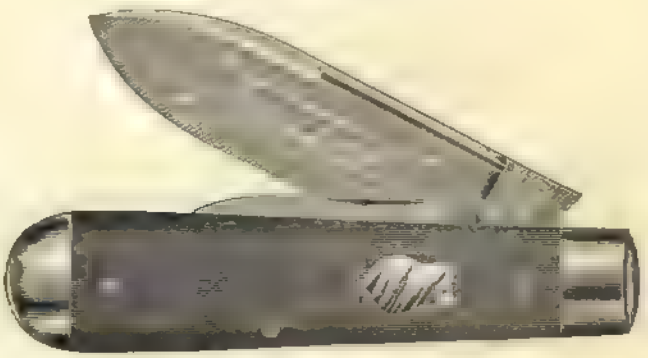
Per Dozen

No. 1138 —Two Blades, Spear Point, Stag Handle, German Silver Bolsters, Brass Lined, $8.00
No. 1138C—Two Blades, Clip Point, Stag Handle, German Silver Bolsters, Brass Lined, 8.00
No. 1135 —Two Blades, Spear Point, Ceroa Handle, German Silver Bolsters, Brass Lined, . . 8.00
No. 1136 —Two Blades, Spear Point, Ebony Handle, German Silver Bolsters, Brass Lined. 8.00

Half Dozen in a Box

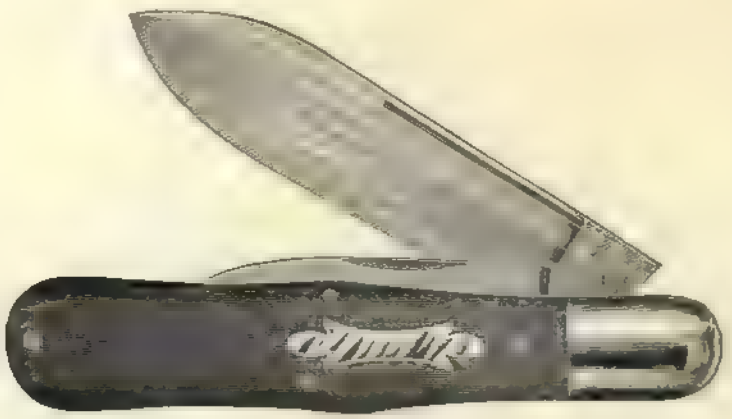
Pocket Knives.

Savage,



	Per Dozen
No. 1156—Two Blades, Ebony Handle, German Silver Cap and Bolster, Brass Lined,	$9.00
No. 1158—Two Blades, Stag Handle, German Silver Cap and Bolster, Brass Lined,	9.00

	Per Dozen
No. 441—Two Blades, Ebony Handle, German Silver Cap and Bolster, Brass Lined,	$12 00
No. 440—Two Blades, Cocoa Handle, German Silver Cap and Bolster, Brass Lined,	12 00
No. 443—Two Blades, Stag Handle, German Silver Cap and Bolster, Brass Lined,	12 00



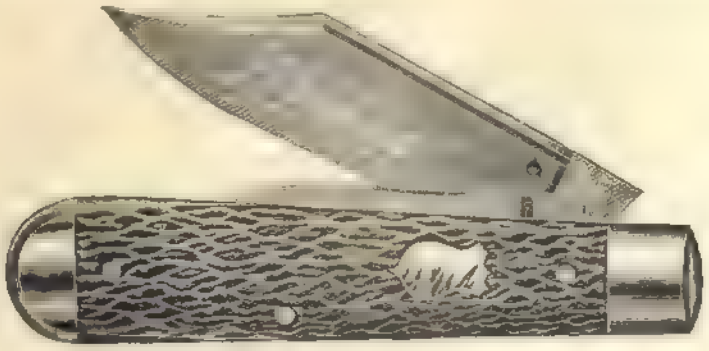
	Per Dozen
No. 546—Two Blades Ebony Handle, German Silver Bolster, Brass Lined,	$12.00

Half Dozen in a Box

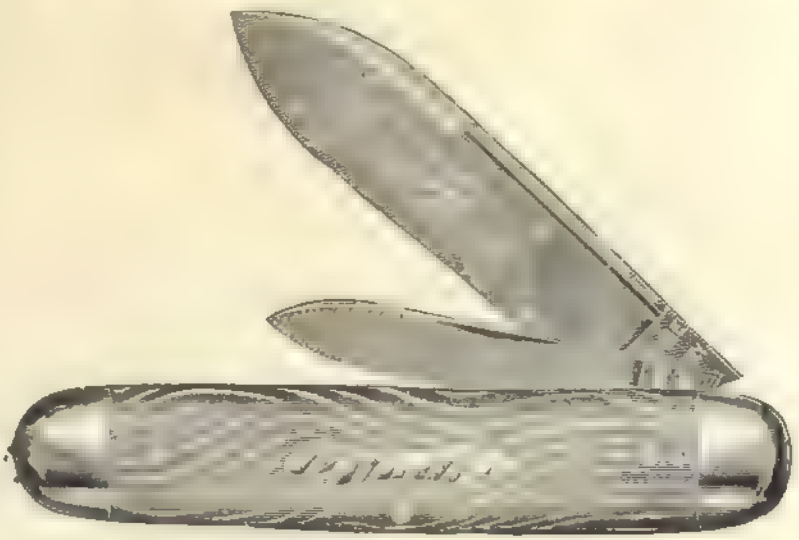
Pocket Knives.

Savage.

No 756—Two Blades Ebony Handle German Silver Cap and Bolster, Brass Lined, . Per Dozen $12 00



No. 1113—Two Blades, Stag Handle German Silver Cap and Bolster Brass Lined . . Per Dozen $12.00



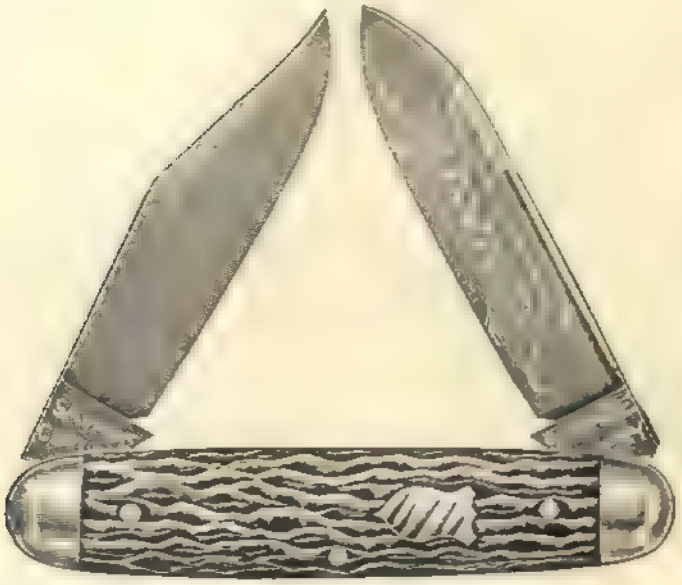
No. 283—Two Blades Stag Handle German Silver Cap and Bolster, Brass Lined, . . . Per Dozen $12.00

Half Dozen in a Box

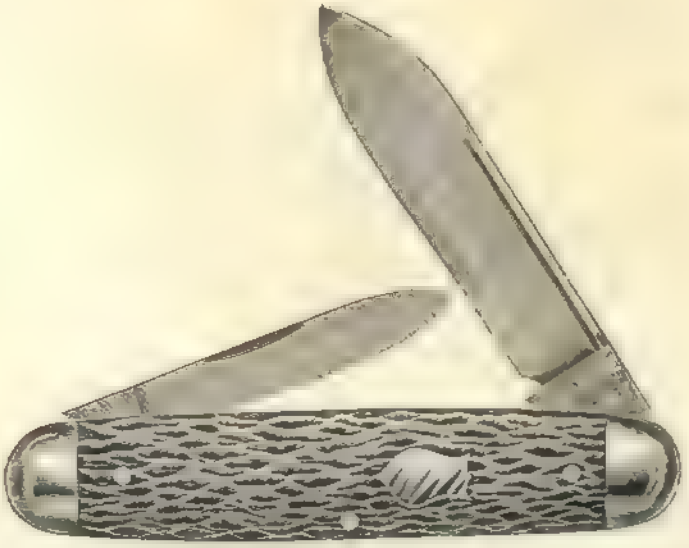
BAKER & HAMILTON

Pocket Knives.

Savage.



No. 573—Two Blades, Stag Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $12.00

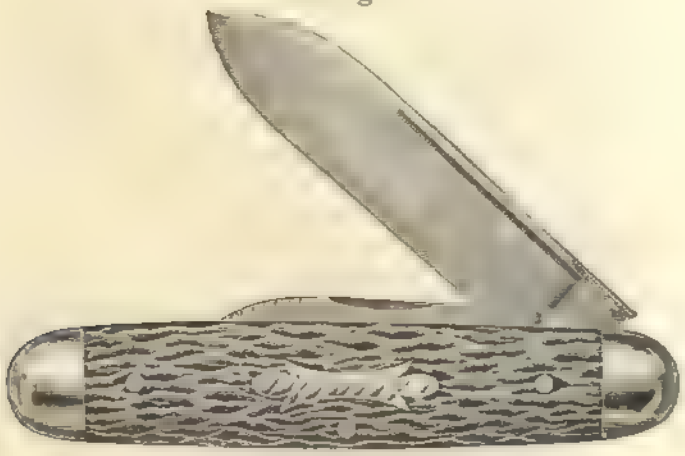


	Per Dozen
No. 2004 —Two Blades, Spear Point, Stag Handle, German Silver Bolsters Brass Lined, . .	$12.00
No. 2004C—Two Blades, Clip Point, Stag Handle, German Silver Bolsters, Brass Lined, .	12.00
No. 1125 —Two Blades, Spear Point, Cocoa Handle German Silver Bolsters, Brass Lined, . .	12.00
No. 1125C—Two Blades, Clip Point, Cocoa Handle, German Silver Bolsters Brass Lined,	12.00

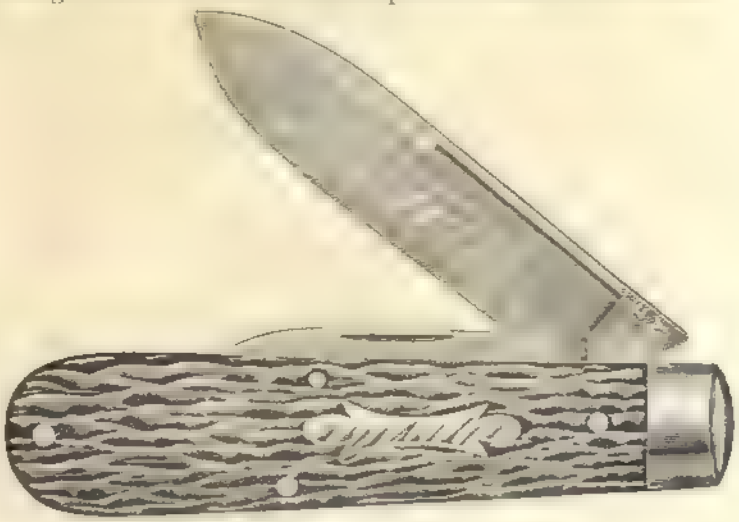
Half Dozen in a Box.

Pocket Knives.

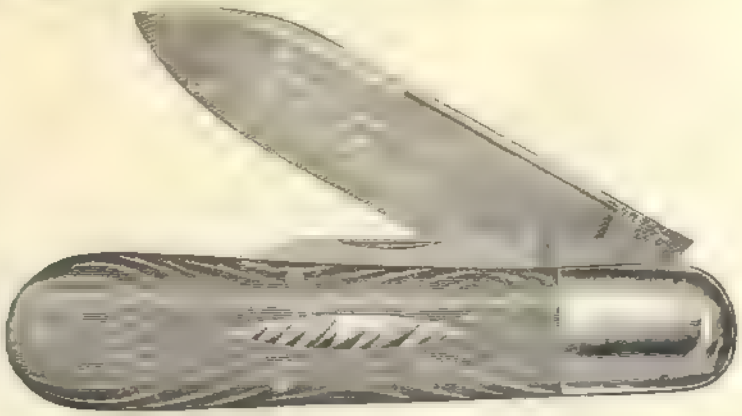
Savage.



No. 783—Two Blades, Stag Handle, German Silver Cap and Bolster, Brass Lined, . . . Per Dozen $12.00



No. 563—Two Blades, Stag Handle, German Silver Bolster, Brass Lined . . . . Per Dozen $12.00



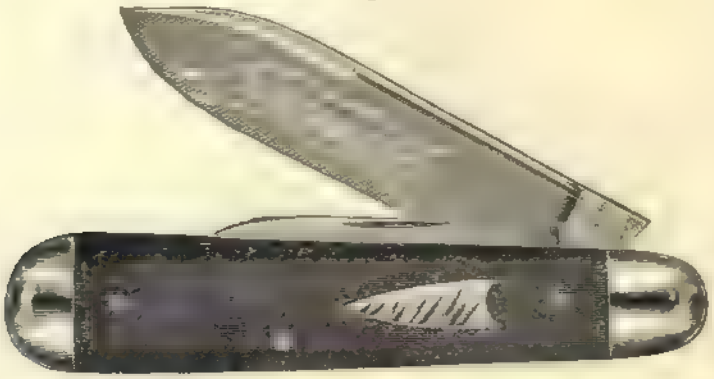
No. 1211—Two Blades, Ebony Handle, German Silver Bolster, Brass Lined, . . Per Dozen $12.00
No. 1213—Two Blades, Stag Handle, German Silver Bolster, Brass Lined, . . 12.00

Half Dozen in a Box.

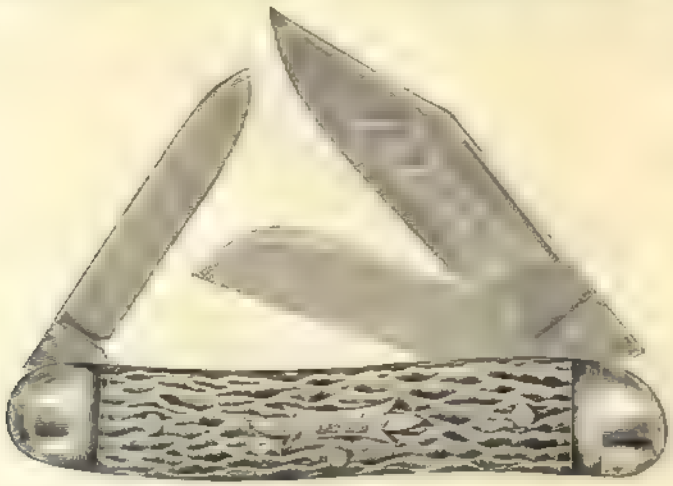
BAKER & HAMILTON

Pocket Knives.

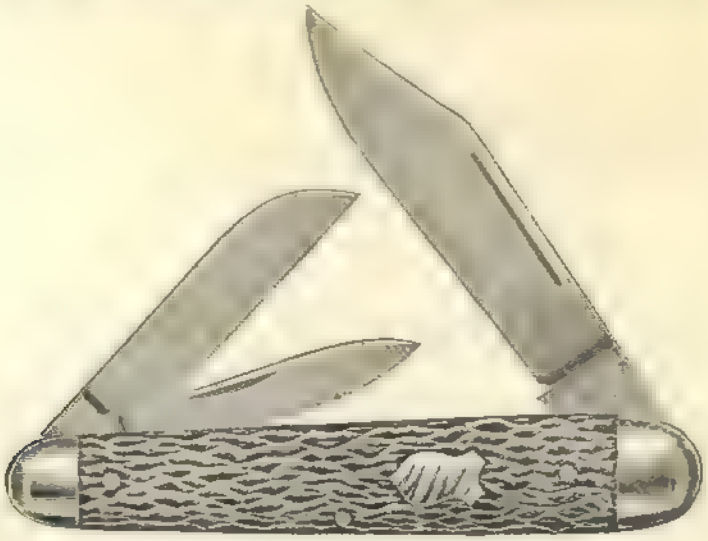
Savage.



No. 478—Two Blades, Stag Handle, German Silver Cap and Bolster, Brass Lined . . . . Per Dozen $12.00



No. 673—Three Blades, Stag Handle, Steel Bolster, Brass Lined, ... Per Dozen $15.00

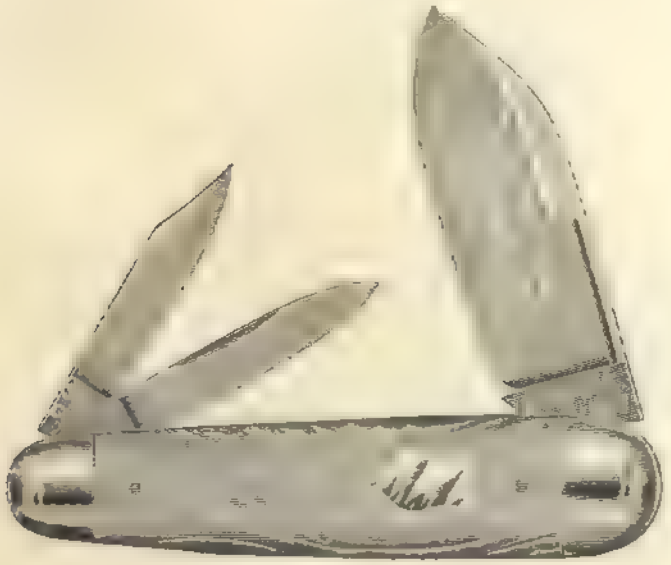


No. 2148—Three Blades, Stag Handle, German Silver Bolster, Brass Lined, . . . Per Dozen $18.00

Half Dozen in a Box.

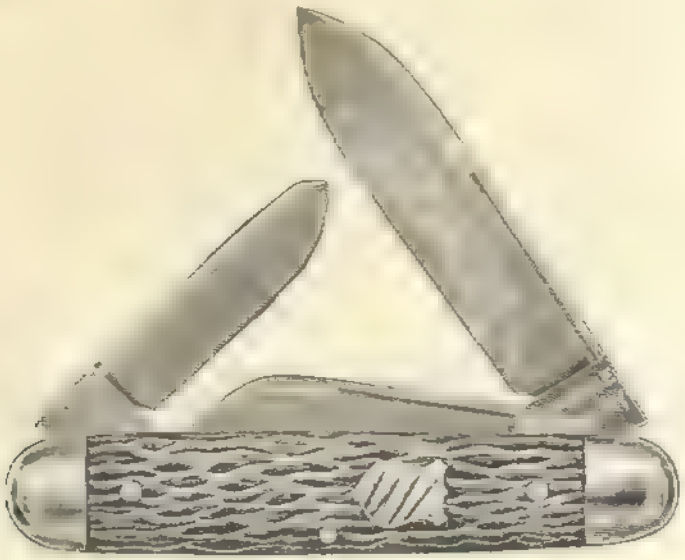
Pocket Knives.

Savage.



Per Dozen

No. 1093—Three Blades, Cocoa Handle, German Silver Bolsters, Brass Lined, ... $18.00



Per Dozen

No. 833 -Three Blades, Spear Point, Stag Handle, German Silver Bolsters, Brass Lined . $15.00

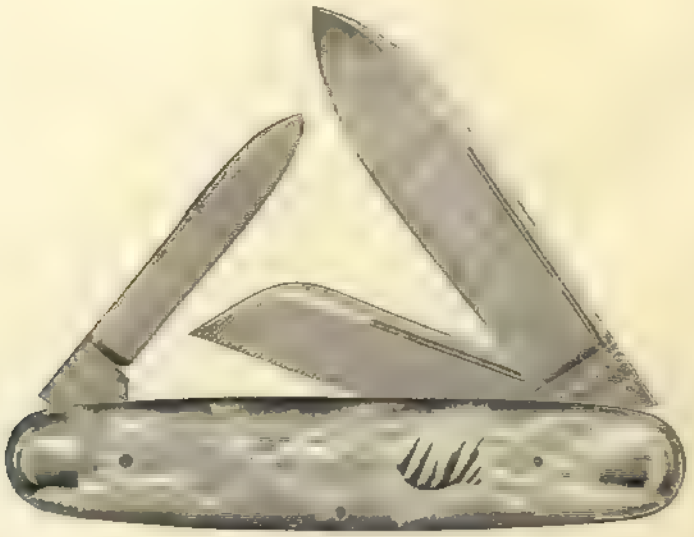
No. 833C Three Blades, Clip Point, Stag Handle German Silver Bolsters, Brass Lined . 15.00

Half Dozen in a Box

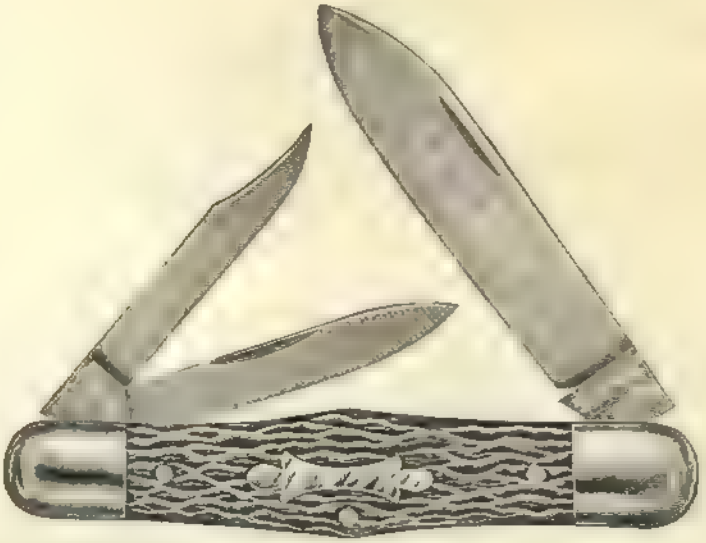
BAKER & HAMILTON

Pocket Knives.

Savage.



	Per Dozen
No. 584 —Three Blades, Spear Point, Pearl Handle, German Silver Bolsters, Brass Lined,	$30.00
No. 584C—Three Blades, Clip Point, Pearl Handle, German Silver Bolsters, Brass Lined,	30.00
No. 583 —Three Blades, Spear Point, Stag Handle, German Silver Bolsters, Brass Lined	15.00
No. 583C—Three Blades, Clip Point, Stag Handle, German Silver Bolsters, Brass Lined,	15 00

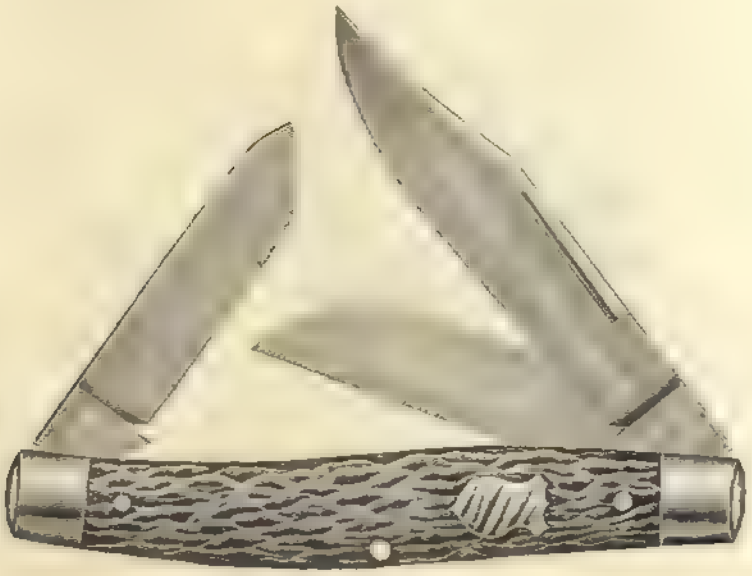


	Per Dozen
No. 2213—Three Blades, Stag Handle, German Silver Bolsters, Brass Lined.	$18.00

Half Dozen in a Box.

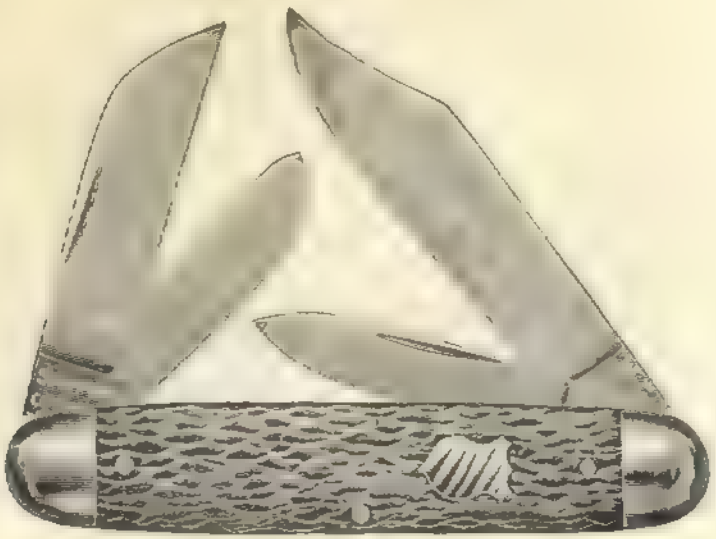
Pocket Knives.

Savage.



BAKER & HAMILTON

	Per Dozen
No. 488—Three Blades, Stag Handle, German Silver Bolsters, Brass Lined,	$15.00
No. 489—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined,	36.00



	Per Dozen
No. 1098—Four Blades, Stag Handle, German Silver Bolsters, Brass Lined,	$30 00

Half Dozen in a Box

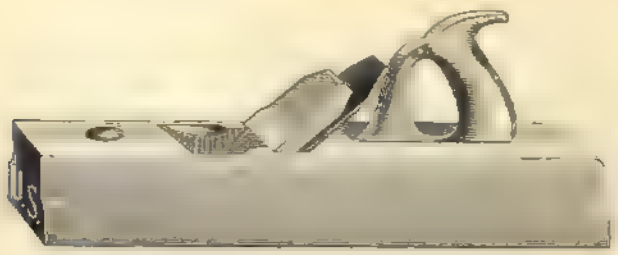
Bench Planes.

Code Aeginensis
No. 3—Smooth, 8 In. Long, 2 to 2¼ In., Double Iron, . . . Each $0.90
Weight, 2¼ lbs. Each.

Code Aeginetae.
No. 5—Smooth, Solid Handle, 8 In. Long, 2 to 2¼ In., Double Iron, . . . Each $1.75
Weight, 2¼ lbs. Each.

Code Aegipanos.
No. 15—Jack, 16 In. Long, 2 to 2¼ In., Double Iron, ... Each $1.00
Weight, 4¼ lbs. Each.

Code Aegisthi.
No. 17—Jack, Razee, 16 In. Long, 2 to 2¼ In., Double Iron, ... Each $1 20
Weight, 4¼ lbs. Each.



Code Aegocerati
No. 21—Fore, 22 In. Long, 2⅜ to 2⅝ In., Double Iron, ... Each $1 40
Weight, 6 lbs. Each.

Code Aegrobit.
No. 27—Jointer, 26 In. Long, 2½ to 2¾ In., Double Iron, . . . 1.50
Weight, 7½ lbs. Each.

Code Aegrobunt
No. 27—Jointer, 28 In. Long, 2½ to 2¾ In., Double Iron, ... 1 60
Weight, 8 lbs. Each.

Code Aegoceros.
No. 23—Fore, Razee, 22 In. Long, 2⅜ to 2⅝ In., Double Iron, . . . Each. $1.60
Weight, 6 lbs Each.

Code Aegreses
No. 29—Jointer, Razee, 26 In. Long, 2½ to 2¾ In., Double Iron, . . 1.75
Weight, 7½ lbs. Each.

Code Aegritas.
No. 29—Jointer, Razee, 28 In. Long, 2½ to 2¾ In., Double Iron, 1.85
Weight, 8 lbs. Each.

Adjustable Wood Planes.

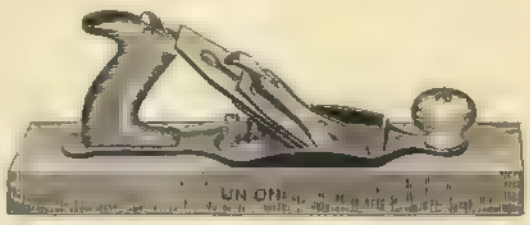
Union.

Code Aehrig — Each
No. 21—Smooth, 7 In. Long, 1¾ In. Cutter, ... $2.00
Weight, 2¼ lbs. Each.

Code Aelfgive
No. 22—Smooth, 8 In. Long, 1¾ In. Cutter, ... 2.00
Weight, 2½ lbs. Each.

Code Aelfride
No. 24—Smooth, 8 In. Long, 2 In. Cutter, ... 2.00
Weight, 2¾ lbs. Each.

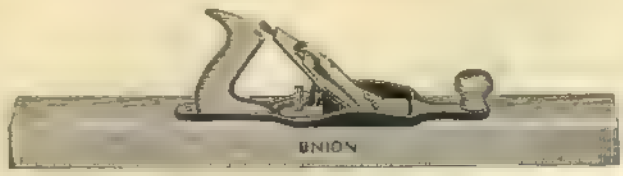
Code Aellus. — Each
No. 35—Handled Smooth, 9 In. Long, 2 In. Cutter, ... $2.50
Weight, 3¼ lbs. Each.



Code Aeltern. — Each
No. 26—Jack, 15 In. Long, 2 In. Cutter, ... $2.25
Weight, 4 lbs. Each.

Code Aeltester
No. 27—Jack, 15 In. Long, 2⅛ In. Cutter, ... 2.50
Weight, 4 lbs. Each.

Code Aemathian
No. 29—Fore, 20 In. Long, 2⅜ In. Cutter, ... 2.70
Weight, 5¾ lbs. Each.

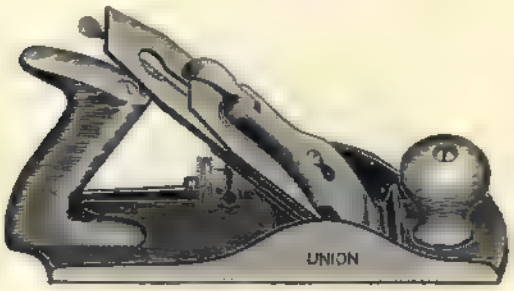


Code Aemilae. — Each
No. 30—Jointer, 22 In. Long, 2⅜ In. Cutter, ... $3.00
Weight, 6 lbs. Each.

Code Aemilium
No. 32—Jointer, 26 In. Long, 2⅜ In. Cutter, ... 3.25
Weight, 7½ lbs. Each.

Adjustable Iron Planes.

Union.



		Each
Code Aemularis. **No. 2**	—Smooth, 7 In. Long, 1⅝ In. Cutter, Weight, 2⅜ lbs. Each.	$2.75
Code Aemulator. **No. 3**	—Smooth, 8 In. Long, 1¾ In. Cutter, Weight, 3⅛ lbs. Each.	3.00
Code Aemulatrix. **No. 4**	—Smooth, 9 In. Long, 2 In. Cutter, Weight, 3⅝ lbs. Each.	3.25
Code Aemuletur. **No. 4½**	—Smooth, 10 In. Long, 2⅜ In. Cutter, Weight, 4¾ lbs. Each.	3.75

		Each
Code Aenderlich. **No. 5**	—Jack, 14 In. Long, 2 In. Cutter, Weight, 4⅝ lbs. Each.	$3.75
Code Aeneam. **No. 6**	—Fore, 18 In. Long, 2⅜ In. Cutter, Weight, 7⅝ lbs. Each.	4.75

		Each
Code Aeneatum. **No. 7**	—Jointer, 22 In. Long, 2⅜ In. Cutter, Weight, 7¾ lbs. Each.	$5.50
Code Aeneide **No. 8**	—Jointer, 24 In. Long, 2⅝ In. Cutter, Weight, 9½ lbs. Each.	6.50

Corrugated Bottoms.

		Each
Code Aenhlarum **No. 3**	—Smooth, 8 In. Long, 1¾ In. Cutter, Weight, 3¼ lbs. Each.	$3.00
Code Aenigma. **No. 4**	—Smooth, 9 In. Long 2 In. Cutter, Weight, 3½ lbs. Each.	3.25
Code Aenigmata. **No. 4½**	—Smooth, 10 In. Long, 2⅜ In. Cutter, Weight, 4¾ lbs. Each.	3.75
Code Aenus. **No. 5**	—Jack, 14 In. Long, 2 In. Cutter, Weight, 4⅝ lbs. Each.	3.75
Code Aeolensis. **No. 6**	—Fore, 18 In. Long, 2⅜ In. Cutter, Weight, 7⅜ lbs. Each.	4.75
Code Aeolides. **No. 7**	—Jointer, 22 In. Long, 2⅜ In. Cutter, Weight, 7¾ lbs. Each.	5.50
Code Aeollorum. **No. 8**	—Jointer, 24 In. Long, 2⅝ In. Cutter, Weight, 9½ lbs. Each.	6.50

One in a Box

Block Planes.

Union.

Code Aequornis. Each
No. 102—5½ In. Long, 1¼ In. Cutter, ... $0.40
Weight, ⅞ lbs. Each.

Code Aeppius. Each
No. 110—7 In. Long 1¾ In. Cutter . $0.60
Weight, 1⅜ lbs. Each.

Code Aequabo. Each
No. 120—7 In. Long, 1¾ In. Cutter, $0.85
Weight, 1¾ lbs. Each.

Code Aequae. Each
No. 9½—6 In. Long, 1¾ In. Cutter, . $1.50
Weight, 1½ lbs. Each.

Code Aequalis. Each
No. 15—7 In. Long, 1¾ In Cutter, . $1.60
Weight, 1½ lbs. Each.

Code Aequaliter. Each
No. 227—Adjustable, 7 In Long, 1¾ In. Cutter, ... $0.85
Weight, 1¾ lbs. Each.

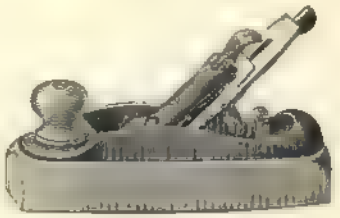
Code Aequana. Each
No. 138—6 In Long, 1¾ In Cutter, . $1 75
Weight, 1½ lbs. Each.

Code Aequandae.
No. 139—7 In. Long, 1¾ In. Cutter, . 1.85
Weight, 1⅝ lbs. Each.

One In a Box.

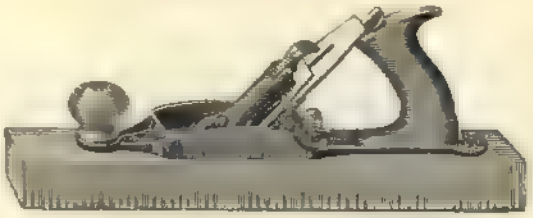
Adjustable Wood Planes.

Bailey's.



		Each
Code Aequilance. **No. 21**—Smooth, 7 In. Long, 1¾ In. Cutter, Weight, 2¼ lbs. Each.		$1 35
Code Aequilavio. **No. 22**—Smooth, 8 In. Long, 1¾ In. Cutter, Weight, 2½ lbs. Each.		1.35
Code Aequiarem. **No. 23**—Smooth, 9 In. Long, 1¾ In. Cutter, Weight, 2⅝ lbs. Each.		1.35
Code Aequioris **No. 24**—Smooth, 8 In. Long, 2 In. Cutter, Weight, 2¾ lbs. Each.		1.35
Code Aequipero. **No. 25**—Smooth, 9½ In. Long, 1¾ In. Cutter, Weight, 2⅝ lbs. Each.		1.35

		Each
Code Aequiterno. **No. 35**—Handled Smooth, 9 In. Long, 2 In. Cutter, Weight, 3¼ lbs. Each.		$1.70
Code Aequivales. **No. 36**—Handled Smooth, 10 In. Long, 2⅜ In. Cutter, Weight, 4 lbs. Each.		1.85
Code Aequivocae **No. 37**—Handled Smooth, 13 In. Long, 2⅝ In. Cutter, Weight, 4⅞ lbs. Each.		2.00



		Each
Code Aequoribus. **No. 26** Jack, 15 In. Long, 2 In. Cutter, Weight, 4 lbs. Each.		$1.50
Code Aequos. **No. 27**—Jack, 15 In. Long, 2⅛ In. Cutter, Weight, 4 lbs. Each.		1.70
Code Aequoreus **No. 27½**—Jack, 15 In. Long, 2¼ In. Cutter, Weight, 4¼ lbs. Each.		1.70
Code Aequorum **No. 28**—Fore, 15 In. Long, 2⅜ In. Cutter, Weight, 5½ lbs. Each.		1.85
Code Aequoreum **No. 29**—Fore, 20 In. Long, 2⅜ In. Cutter, Weight, 5¾ lbs. Each.		1.85
Code Aeravi. **No. 30**—Jointer, 22 In. Long, 2⅜ In. Cutter, Weight, 6 lbs. Each.		$2.00
Code Aeruginio. **No. 31**—Jointer, 24 In. Long, 2⅜ In. Cutter, Weight, 6 lbs. Each.		2.00
Code Aerumur **No. 32**—Jointer, 26 In. Long, 2⅜ In. Cutter, Weight, 7½ lbs. Each.		2.20
Code Aerum. **No. 33**—Jointer, 28 In. Long, 2⅜ In. Cutter, Weight, 8 lbs. Each.		2.20
Code Aerugilich **No. 34**—Jointer, 30 In. Long, 2⅝ In. Cutter, Weight, 8⅝ lbs. Each.		2.35

One in a Box.

Adjustable Wood Planes.

Stanley's.

Code Aermchen. — **No. 122**—Smooth, 8 In. Long, 1¾ In. Cutter, ... Each $1.00
Weight, 2¼ lbs. Each.

Code Aernalich. — **No. 135**—Handled Smooth, 10 In. Long, 2⅛ In. Cutter, ... Each $1.35
Weight, 3 lbs. Each.

Code Aerofanas — **No. 127**—Jack, 15 In. Long, 2⅛ In. Cutter, ... Each $1.35
Weight, 3½ lbs. Each.

Code Aerofolas — **No. 132**—Jointer, 26 In. Long, 2⅝ In. Cutter, ... Each $1.70
Weight, 6¼ lbs. Each.

Code Aerofolia — **No. 129**—Jointer, 26 In. Long, 2⅝ In. Cutter, ... 1.50
Weight, 5 lbs. Each.

Adjustable Iron Planes.

Stanley's Bed Rock.

Code Aerolitem. — **No. 602**—Smooth, 7 In. Long, 1⅝ In. Cutter, ... Each $2.15
Weight, 2½ lbs. Each.

Code Aerol Ilbus. — **No. 603**—Smooth, 8 In. Long, 1¾ In. Cutter, ... 2.30
Weight, 3¼ lbs. Each.

Code Aerolits. — **No. 604**—Smooth, 9 In. Long, 2 In. Cutter, ... 2.50
Weight, 3¾ lbs. Each.

Code Aerologist. — **No. 604½**—Smooth, 10 In. Long, 2⅛ In. Cutter, ... 2.90
Weight, 5 lbs. Each.

Code Aeropais. — **No. 605**—Jack, 14 In. Long, 2 In. Cutter, ... Each $2.90
Weight, 5⅛ lbs. Each.

Code Aeropsis. — **No. 605½**—Jack, 15 In. Long, 2¼ In. Cutter, ... 3.25
Weight, 6½ lbs. Each.

Code Aerostatas. — **No. 606**—Fore, 18 In. Long, 2⅜ In. Cutter, ... 3.50
Weight, 7⅝ lbs. Each.

Code Aerucarum. — **No. 607**—Jointer, 22 In. Long, 2⅜ In. Cutter, ... 4.20
Weight, 8¼ lbs. Each.

Code Aerugatum. — **No. 608**—Jointer, 24 In. Long, 2⅝ In. Cutter 5.80
Weight, 9¾ lbs. Each.

One in a Box.

BAKER & HAMILTON

Adjustable Iron Planes.

Bailey's.

		Each
Code Aeschinem. **No. 1**	—Smooth, 5½ In., Long, 1¼ In. Cutter, ... Weight, 1¼ lbs. Each.	$1.50
Code Aeschinas. **No. 2**	—Smooth, 7 In. Long, 1⅝ In. Cutter, ... Weight, 2⅜ lbs. Each	1.85
Code Aeschrio. **No. 3**	—Smooth, 8 In. Long, 1¾ In. Cutter, Weight, 3⅛ lbs. Each.	2.00
Code Aeschrione **No. 4**	Smooth, 9 In. Long, 2 In. Cutter, Weight, 3⅝ lbs. Each.	2.20
Code Aeschrute. **No. 4½**	—Smooth, 10 In. Long, 2⅜ In Cutter . . . . . Weight, 4¾ lbs. Each.	2.50
Code Aesculus. **No. 5**	—Jack. 14 In. Long, 2 In. Cutter, Weight, 4⅝ lbs. Each.	$2.50
Code Aesermani **No. 5½**	—Jack, 15 In Long. 2¼ In. Cutter, ... Weight, 6¼ lbs. Each.	2.85
Code Aesinatem **No. 6**	—Fore, 18 In. Long, 2⅜ In. Cutter, ... Weight, 7⅜ lbs. Each	3.20
Code Aestat. **No. 7**	—Jointer, 22 In. Long, 2⅜ In. Cutter, ... Weight, 7¾ lbs. Each.	3 65
Code Aesopeae. **No. 8**	—Jointer, 24 In. Long, 2⅝ In. Cutter, ... Weight, 9½ lbs. Each.	4.35

Bailey's, Corrugated Bottom.

		Each
Code Aestatibus. **No. 2C**	—Smooth, 7 In. Long, 1⅝ In. Cutter, ... Weight, 2¼ lbs. Each.	$1.85
Code Aestatis. **No. 3C**	—Smooth, 8 In. Long, 1¾ In. Cutter, ... Weight, 3¼ lbs. Each.	2.00
Code Aestheme **No. 4C**	—Smooth, 9 In. Long, 2 In. Cutter, ... Weight, 3½ lbs. Each.	2.20
Code Aesthuant. **No. 4½C**	—Smooth, 10 In. Long, 2⅜ In. Cutter . . . . . Weight, 4¾ lbs. Each.	2.50
Code Aestig **No. 5C**	—Jack, 14 In. Long, 2 In. Cutter, ... Weight, 4⅝ lbs. Each.	$2 50
Code Aestigkeit. **No. 5½C**	—Jack, 15 In. Long, 2¼ In. Cutter, ... Weight, 6¼ lbs. each.	2.85
Code Aestin ae **No. 6C**	—Fore, 18 In. Long, 2⅜ In Cutter, ... Weight, 7⅜ lbs. Each.	3 20
Code Aestivahis **No. 7C**	—Jointer, 22 In. Long, 2⅜ In. Cutter, ... Weight, 8 lbs. Each.	3.65
Code Aestivandi. **No. 8C**	—Jointer, 24 In. Long, 2⅝ In. Cutter, ... Weight, 9 lbs. Each.	4.35

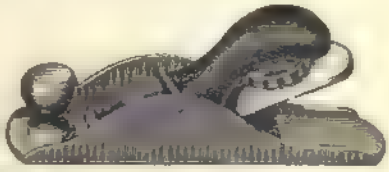
All One in a Box.

Block Planes.

Stanley's.

Code Aestimatur — **No. 101**—3½ In. Long, 1 In. Cutter, Weight, ¼ lb. Each. — Each $0.60

Code Aestuarent — **No. 100**—3½ In. Long, 1 In. Cutter, Weight, ⅜ lb. Each — Each $0.60



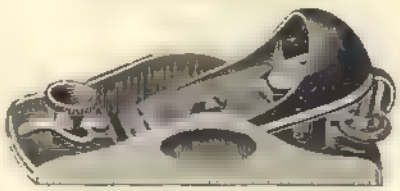
Code Aestuatec — **No. 102**—5½ In. Long, 1¼ In. Cutter, Weight ⅞ lb. Each. — Each $1.00

Code Aestuatel — **No. 110**—7½ In. Long, 1¾ In. Cutter, Weight 1⅛ lbs. Each. — Each $1.50

Code Aestuatrl — **No. 103**—Adjustable, 5½ In. Long, 1¼ In. Cutter, Weight, ⅞ lb. Each. — 1.00

Code Aestuans — **No. 220**—Adjustable, 7½ In. Long, 1¾ In. Cutter, Weight, 1¾ lbs. Each. — Each $2.00

Code Aesymné — **No. 130**—Double Ender, 8 In. Long, 1¾ In. Cutter, Weight, 1⅝ lbs. Each. — Each $0.60



Bailey's.

Code Aeternalis — **No. 9½**—6 In. Long, 1¾ In. Cutter, Weight, 1½ lbs. Each — Each $1.00

Code Aetherace — **No. 16**—Nickel Trimming, 6 In. Long, 1¾ In. Cutter, Weight, 1½ lbs. Each. — Each $1.15

Code Aetheri — **No. 15**—7 In. Long, 1¾ In. Cutter, Weight, 1½ lbs. Each. — 1.10

Code Aethalides — **No. 17**—Nickel Trimmings, 7 In. Long, 1¾ In. Cutter, Weight, 1½ lbs. Each. — 1.25

Code Aethelbald — **No. 9¾**—Rosewood Handle, 6 In. Long, 1¾ In. Cutter, Weight, 1¾ lbs. Each. — Each $1.20

Code Aethelbert — **No. 15½**—Rosewood Handle, 7 In. Long, 1¾ In. Cutter, Weight, 1¾ lbs. Each. — 1.30

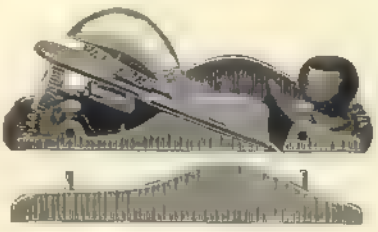
One in a Box.

Block Planes.

Bailey's.

	Each
Code Aetherblan. **No. 18**—Nickel Trimmings, 6 In. Long, 1¾ In. Cutter, ... Weight, 1⅝ lbs. Each.	$1.20
Code Aetherlore **No. 19**—Nickel Trimmings, 7 In. Long, 1¾ In. Cutter, ... Weight, 1⅝ lbs. Each.	1.30

The Knuckle Joint in the Cap makes it a Lever to Clamp the Cutter in its Seat



	Each
Code Aethlon. **No. 60**—Low Angle, 6 In. Long, 1½ In. Cutter, ... Weight, 1¼ lbs. Each.	$1.15
Code Aethlopes. **No. 65**—Low Angle, 7 In. Long, 1½ In. Cutter, ... Weight, 1½ lbs. Each.	1.20

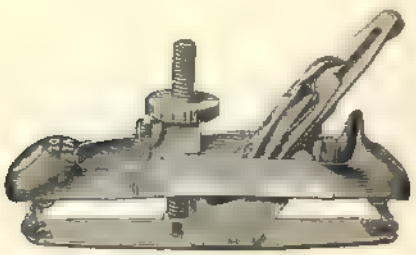
	Each
Code Actiens. **No. 140**—Rabbett and Block 7 In. Long 1¾ In. Cutter, ... Weight, 1¾ lbs. Each.	$1.25

A detachable satin will easily change this tool from a Block to Rabbet Plane or vice versa. Cutter is set on a skew

One in a Box

BAKER & HAMILTON

Adjustable Iron Planes.



Victor Circular.

	Each
Code Aetcles. **No. 20**—Nickel Plated, Adjustable, 1¾ In. Cutter, ... Weight, 3⅞ lbs. Each.	$3 75

The ends of the flexible face being fixed and the force applied at the center gives a uniformity of adjustment to the face and the cutter is most firmly held in position.

Stanley's Circular.

	Each
Code Aetegrund. **No. 113**—Adjustable Circular, 1¾ In. Cutter, ... Weight, 3¾ lbs. Each.	$2.75

In this form of Circular Plane, the Flexible Steel Face can be easily adjusted to any required Arc, either Concave or Convex by turning the Knurled Nut on the front of the Plane.

One in a Box

Adjustable Iron Planes.

Stanley's.

Side Bead Rabbet.

Code Aetzung. — Each

No. 98—4 In. Long, Right Hand, . . . $0.90
Weight, ¾ lb. Each.

Code Aetzvogel.

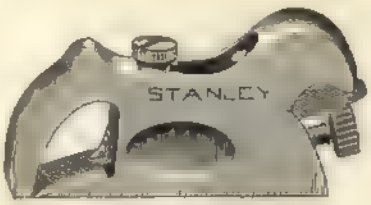
No. 99—4 In. Long, Left Hand, .90
Weight, ¾ lb. Each.

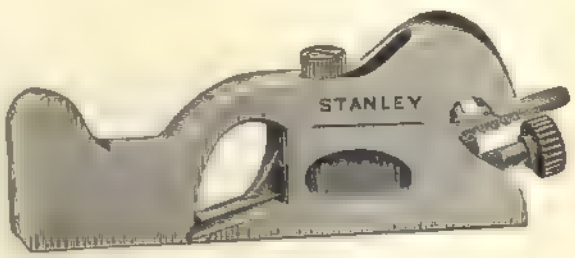
A convenient tool for side-rabbeting and trimming dados mouldings [illegible] which it will work close up into corners when required

Bull Nose Rabbet.

Code Aevltemos. — Each

No. 75—4 In. Long, 1 In Cutter . . . $0.35
Weight, ⅝ lb. Each.





Bull Nose Rabbet.

Code Aezone. — Each

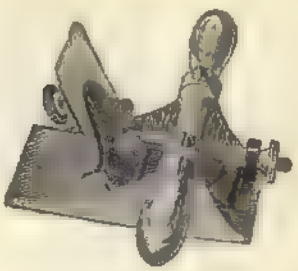
No. 90 Adjustable, 4 In Long 1 In Cutter, ... $2.00
Weight, 1½ lbs. Each.

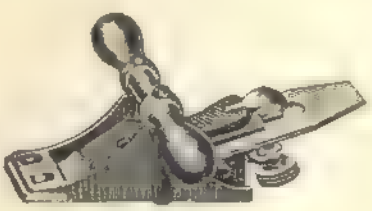
Bull Nose Rabbet.

Code Aezatl. — Each

No. 92 Adjustable, 5½ In. Long, ¾ In. Cutter, ... $2.00
Weight, 2¼ lbs. Each

This plane is designed for fine Cabinet work where extreme accuracy is required. The sides and bottom being square with each other, the plane will [illegible]





Veneer Scraper.

Code Afakite. — Each

No. 12—Adjustable Scraper, 3 In. Cutter, $2.25
Weight, 3¼ lbs. Each.

Belt Makers.

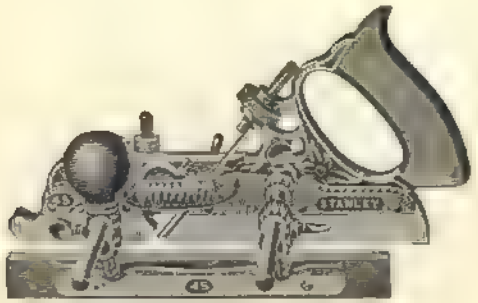
Code Afanuate. — Each

No. 11—2⅜ In. Cutter, ... $2.00
Weight, 3½ lbs. Each.

One in a Box

Adjustable Iron Planes.

Stanley's.



Beading, Rabbet and Slitting.

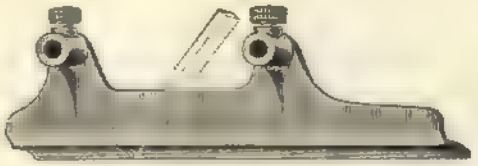
Code Afanabats. Each

No. 45—Iron Stock and Fence, Nickel Plated, $8.00

Weight, 8 lbs. Each.

This Plane combines a malleable stock and a sliding section, so arranged that cutters of different widths can be used. Each Plane is fitted with adjustable fence or guide and a depth gauge, and also with spurs for use in working across the grain. This plane can be used right or left hand.

This Plane embraces (1) Beading and Center Beading Plane; (2) Rabbet and Filletster; (3) Bead; (4) Plow; (5) Matching Plane; (6) Sash Plane, and (7) a superior Slitting Plane.

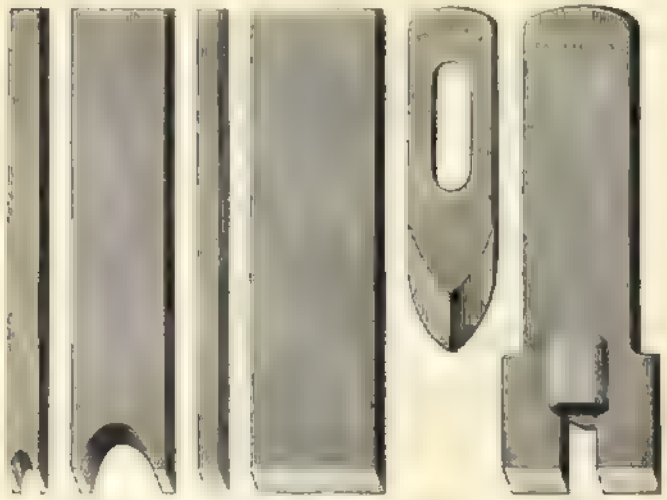


Hollows and Rounds.

For use on Stanley's No. 45 Plane.

Nos.	6	8	10	12
Code,	Afaneson.	Afaniptero.	Afanismo.	Afanita.
Cutter In.,	½	⅝	¾	1
Works Circle, In.,	¾	1	1¼	1½
Weight Per Pair, lbs.	1⅝	1¾	1⅞	2
Per Pair,	$1.40	1.40	1.40	1.40

By substituting a specially formed detachable bottom as shown in cut, for the sliding section mentioned above, cutters known as "Hollows" and "Rounds" may be used to advantage. A special bottom is required for each size of these tools.



Beading Tools. Plow and Dado Bits. Slitting Tool. Tongueing Tool.

Each Plane has seven Beading Tools (3-16, ¼, 5-16, ⅜, 7-16 and ½ inch), seven Plow and Dado Bits (⅛, 3-16, ¼, 5-16, ⅜, 7-16, ½, ⅝, ¾ and ⅞ inch), a Slitting Blade, a Tonguing Tool and a Sash Tool.

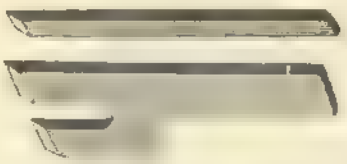
Traut's Dado, Filletster, Plow, Etc.

Code Afastado. Each

No. 46—Iron Stock and Fence, Nickel Plated,

Accompanied with 11 tools, Bits, Etc. $7.00

Weight, 5⅜ lbs. Each.



Nosing Tools.

Code Afanaron Each

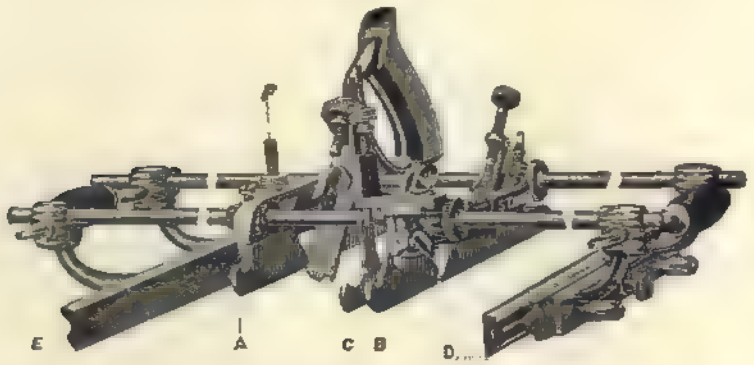
No. 5—1¼ In. for No. 45 Stanley Plane, . $1.00

Weight, ⅝ lbs. Each.

This Tool is accompanied by eight Plow and Dado Bits (3-16, ¼, 5-16, ⅜, ½, ⅝, ¾ and ⅞ inch), Cutter and Slitting Tool for a Tonguing Tool. All except the Slitting Blade are secured in the main stock on a screw

Adjustable Iron Planes.

Stanley's.

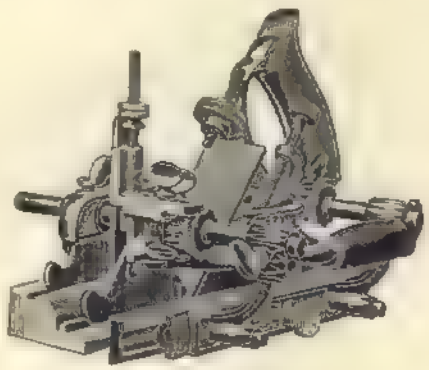


Code Arranging. Each

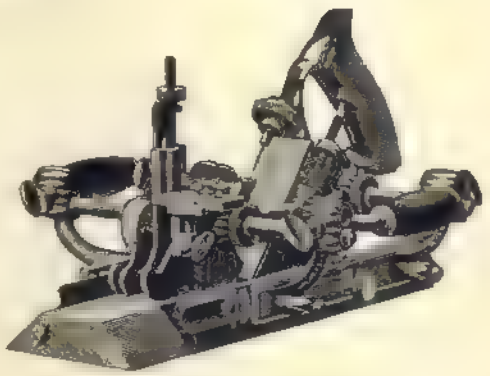
No. 55—Universal, Nickel Plated, with 52 Tools, Bits, Etc., ... $16 00

Weight, 14¼ lbs Each.

BAKER & HAMILTON



No. 55—As Moulding Plane.



No. 55—As Chamfer Plane.

This Plane consists of —

A Main Stock (A) with two sets of transverse sliding arms, a depth gauge (F) adjusted by a screw, and a Slitting Cutter with Stop.

A Sliding Section (B) with a vertically adjustable bottom.

The Auxiliary Center Bottom (C) is to be placed in front of the Cutter, as an extra support or stop, when needed. This bottom is adjusted both vertically and laterally.

Fences (D) **and** (E). Fence D has a lateral adjustment by means of a screw, for extra fine work. The Fences can be used on either side of the Plane, and the rosewood guides can be tilted to any desired angle, up to 45°, by loosening the screws on the face. Fence E can be reversed for Center Beading wide boards.

An Adjustable Stop to be used in beading the edges of matched boards is inserted on left hand side of sliding section (B).

Directions.

Moulding Plane.—Insert the desired Cutter, and adjust bottom of Sliding Section (B) to conform to the shape of the Cutter; then fasten this Section firmly by means of the Check-nuts on the transverse arms. When needed, adjust Auxiliary Center Bottom (C) for an additional support in front of the Cutter. By tilting the rosewood guides on Fences D and E, mouldings of various angles may be formed.

Match, Sash, Beading, Reeding, Fluting, Hollow, Round Plow, Rabbet and Filletster Plane.—Use in same manner as for Mouldings. In working Match and Sash Cutters, the Auxiliary Center Bottom (C) may be used as a stop.

Dado.—Remove the Fences (D and E) and set the spurs parallel with the edges of Cutter. Insert long Adjustable Stop on left hand side of Sliding Section.

Slitting Plane.—Insert the Cutter and Stop on right hand side of the Main Stock and use Fence D or E for guide.

Chamfer.—Insert the desired Cutter; fasten a Fence on each side of the Plane and tilt the rosewood guides to the desired angle.

Pocket Knives

Tree Brand.

Three Blade, Crocus Polished, Brass Lined, German Silver Tips.

No		Per Doz
5613 3	3⅛ inch, **Stag** Handle,	$20 50
6157	3⅛ inch, **Pearl** Handle,	36 00

Three Blade and Corkscrew, Crocus Polished, Brass Lined, German Silver Bolsters.

No		Per Doz
6652	—3¼ inch, **Stag** Handle,	$22 00
6686	—3¼ inch, **Pearl** Handle,	36 00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No		Per Doz
5606B	—3⅜ inch, Black **Horn** Handle,	$19 00
5606S	3⅜ inch, **Stag** Handle,	20 00
6379	—3⅜ inch, **Pearl** Handle,	30 00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No		Per Doz
6380	—3¼ inch, **Pearl** Handle,	22.50

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No		Per Doz.
6330	—3¼ inch, **Pearl** Handle,	$27.00

All Above One-half Dozen in a Box.

Pocket Knives

Tree Brand.

Three Blade, Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz
5758	—3¼ inch, **Stag** Handle,	$24.00
5153	—3¼ inch, **Pearl** Handle,	36.00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz
6063	—3⅜ inch, **Stag** Handle,	$14 00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
6626	—3⅜ inch, **Stag** Handle,	18 00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
6526	—3⅜ inch, **Stag** Handle,	$21.00

Three Blade, Crocus Polished, Brass Lined, German Silver Tips and Shield.

No.		Per Doz
5614	—3½ inch, **Stag** Handle,	$24.00

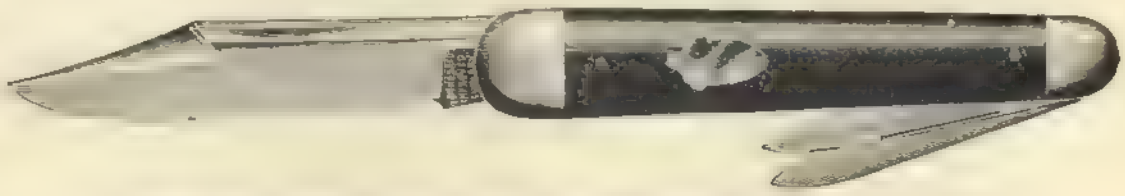
All Above One-half Dozen in a Box

Pocket Knives

Tree Brand.

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
6748	3⅛ inch, **Stag** Handle,	$24.00
6749	3⅛ inch, **Horn** Handle,	24.00



Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
6371	—3 inch, **Horn** Handle.	$24.00

Three Blade, Crocus Polished, Brass Lined, Steel Bolsters, German Silver Shield.

No.		Per Doz.
6553	—3¾ inch, Genuine **Stag** Handle,	22.00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
6378	—3⅝ inch, **Pearl** Handle,	38 00

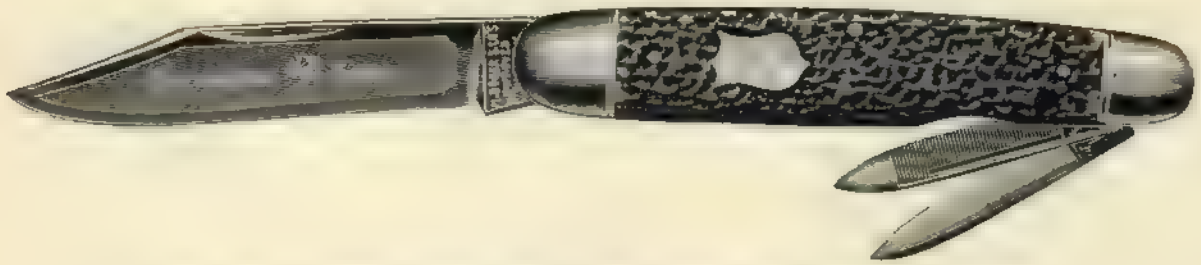
Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
6005	—3¾ inch, **Stag** Handle,	$21.00

All Above One-half Dozen in a Box

Pocket Knives

Tree Brand.



Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No. 6947—3⅝ inch, Stag Handle, ... Per Doz $24.00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No. 5949—3⅛ inch, Stag Handle, ... Per Doz $21.00

Two Blade, Crocus Polished, Brass Lined, Steel Bolster.

No. 6453—3¼ inch, Physicians Knife, Stag Handle, ... Per Doz $21.00

Two Blade, Crocus Polished, Spatula Glazed, Brass Lined, German Silver Bolsters and Cap.

No. 6835—3⅛ inch, Stag Handle, ... Per Doz $24.00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No. 6720—3½ inch, Swedish Pattern, Electricians Knife, Cocoa Handle, ... Per Doz $21.00

All Above One-half Dozen in a Box.

Pocket Knives

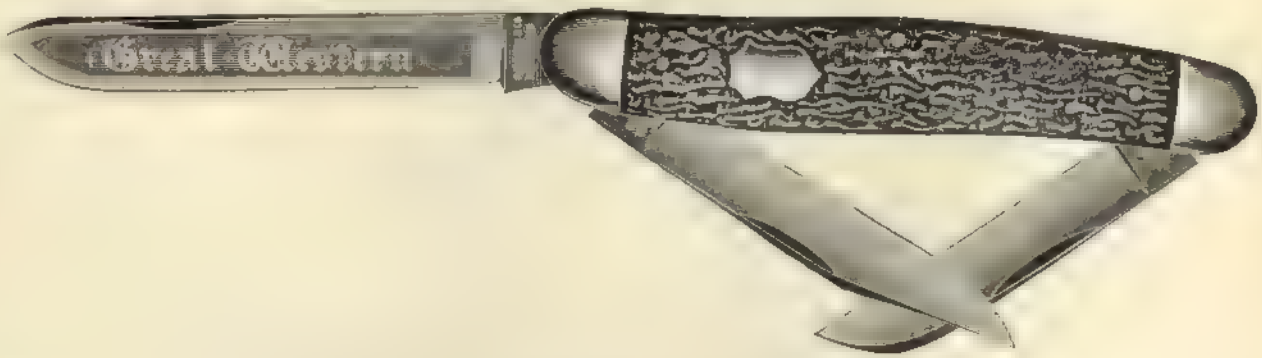
Tree Brand.

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz.
6894	3⅛ inches, Stockman's Knife, Stag Handle, . .	$19.00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz.
6433	3⅝ inches, Cattleman's Knife, Stag Handle	$20.50



Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz.
7167	3⅞ inches, Cattleman's Knife, Stag Handle, ...	$27.00

Three Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz
6065	4 inch, Premium Stock Knife, Buffalo Horn Handle, ...	$30.00
6066	4 inch, Premium Stock Knife, Stag Handle, ...	27.00

All Above One-half Dozen in a Box.

Pocket Knives

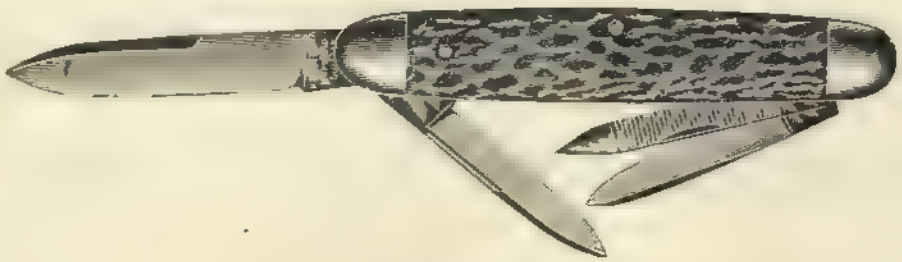
Tree Brand.

Four Blade, Crocus Polished, German Silver Lined, Bolsters and Shield.

No.		Per Doz
6315	2½ inch, **Pearl** Handle,	$23.00

Four Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No		Per Doz
6668	2¾ inch **Pearl** Handle, with Ring,	$24.00
6260	2¾ inch, **Pearl** Handle, without Ring,	22 00



Four Blade, Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz
6762	3 inch, **Stag** Handle	$13.50
6781	3 inch, **Pearl** Handle,	24.00

Four Blade, Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
6524	3⅛ inch, **Stag** Handle,	$22 00

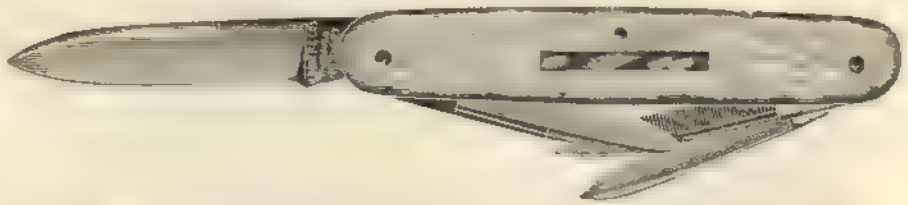
Four Blade, Crocus Polished, German Silver Lined, Bolsters and Shield.

No.		Per Doz.
6308	3⅛ inch, Genuine **Stag** Handle,	$36 00
5990	3⅛ inch, **Pearl** Handle,	48.00

All Above One-half Dozen in a Box

Pocket Knives

Tree Brand.



Four Blade, Crocus Polished, Brass Lined, German Silver Shield, No Tips.

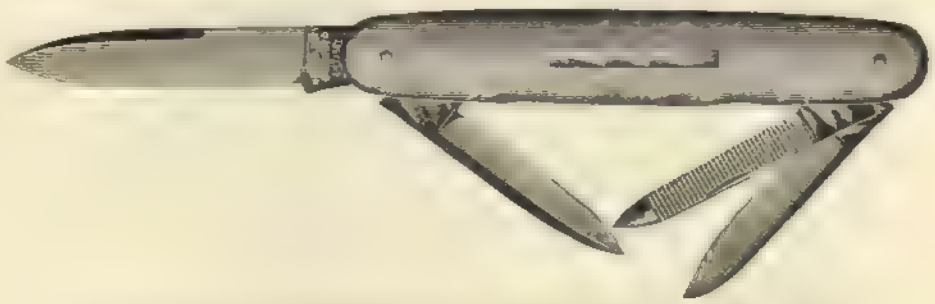
No. 6057—3 inch, Pearl Handle, ... Per Doz. $36 00

Four Blade, Crocus Polished, German Silver Lined and Shield, Milled.

No. 6441 -3⅛ inch, Pearl Handle, ... Per Doz $42.00

Four Blade, Crocus Polished, German Silver Lined and Bolsters.

No. 6501—3¼ inch, Pearl Handle, ... Per Doz. $42.00



Four Blade, Crocus Polished, German Silver Lined and Shield, Milled.

No. 6796—3⅛ inch, Pearl Handle, ... Per Doz $50.00

Four Blade, Crocus Polished, German Silver Lined, Milled, Pearl Back.

No. 6504—3⅛ inch, Pearl Handle, ... Per Doz. $52.00

All Above One-half Dozen in a Box

Pocket Knives

Tree Brand.

No.	Four Blade, Crocus Polished, Brass Lined, German Silver Bolsters.	Per Doz
6381	—3¼ inch, Pearl Handle,	$24.00

No.	Four Blade, Crocus Polished, Brass Lined, German Silver Bolsters.	Per Doz
6457	—3⅜ inch, Stag Handle,	$18.00

No.	Four Blade, Crocus Polished, German Silver Lined and Tips, Milled.	Per Doz
6368	—3½ inch, Stag Handle,	$36.00

No.	Four Blades, Crocus Polished, Brass Lined, German Silver Tips, and Shield,	Per Doz
5613	4—3⅛ inch, Stag Handle,	$21.00
5612	—3⅜ inch, Pearl Handle,	36.00
5611	—3 ½ inch, Pearl Handle,	42.00

No.	Four Blade, Polished, Brass Lined, German Silver Bolsters and Shield.	Per Doz.
6282	—3⅞ inch, Stag Handle, Carpenters Knife,	$26.00

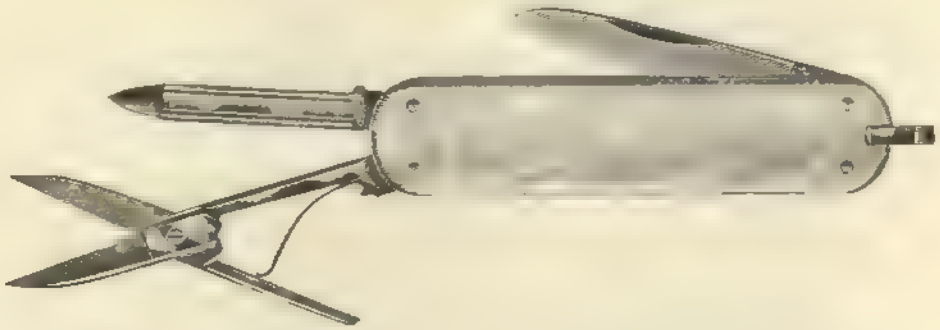
All Above One-half Dozen in a Box.

Pocket Knives

Tree Brand—Combination Scissor-Knives.

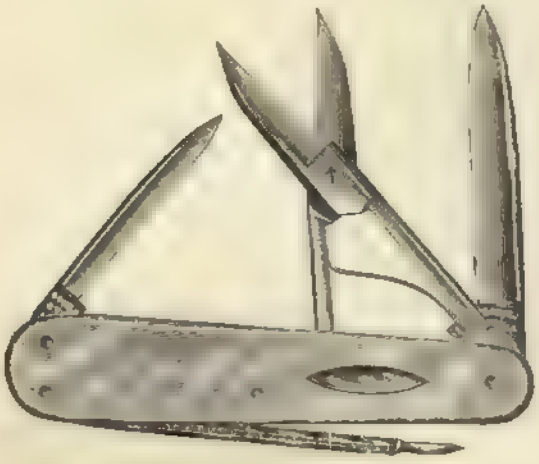
Full Crocus Polished, German Silver Lined and Trimmings.

No		Per Doz.
6508—2½ inch, **Pearl** Handle,	. . . . .	$27.00



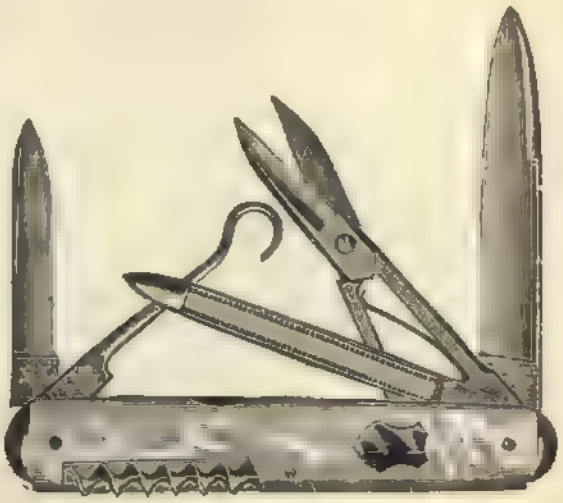
Full Crocus Polished, German Silver Lined and Trimmings.

No		Per Doz.
6800—2¾ inch, **Pearl** Handle,	. . . . .	$40.00



Full Crocus Polished, Brass Lined, German Silver Trimmings.

No.		Per Doz.
6219—2⅞ inch, **Pearl** Handle,	. . .	$52.00



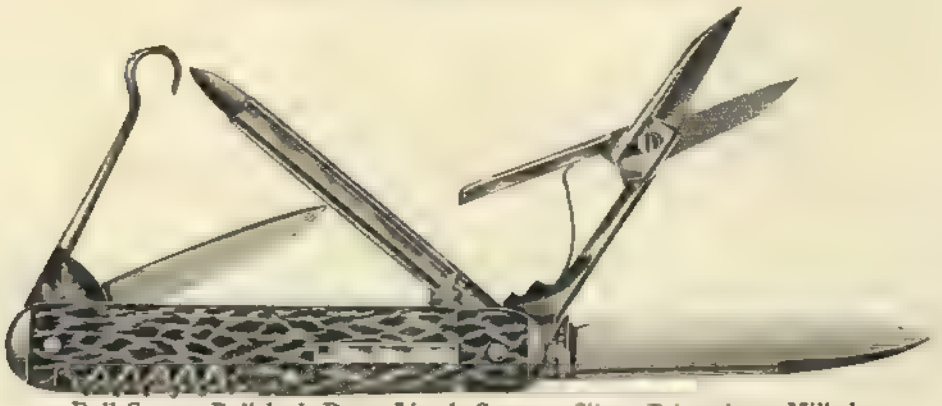
Full Crocus Polished, German Silver Lined, German Silver Tips and Shield.

No		Per Doz
5598—3 inch **Pearl** Handle,	.	$60.00

All Above One-half Dozen in a Box

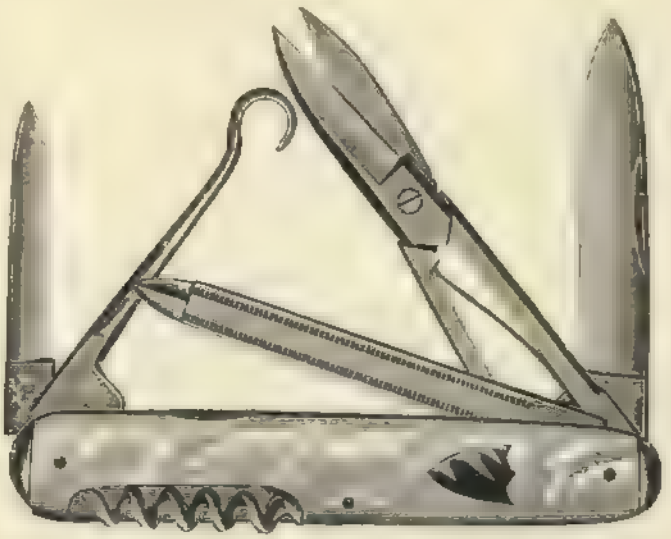
Pocket Knives

Tree Brand—Combination Scissor-Knives.



Full Crocus Polished, Brass Lined, German Silver Trimmings, Milled.

No.		Per Doz
6542	—2⅞ inch, Genuine **Stag** Handle, .	$60 00



Full Crocus Polished, Brass Lined, German Silver Trimmings.

No		Per Doz
6945	—3½ inch, Genuine **Stag** Handle,	$68 00

Full Crocus Polished, German Silver Lining.

No.		Per Doz
6802	—3⅜ inch, **Pearl** Handle, ...	$110 00
6011	—3 inch, **Pearl** Handle (Silmilar to No. 6802 ,but not the same Combination),	110 00

All Above One-half Dozen in a Box.

Pocket Knives

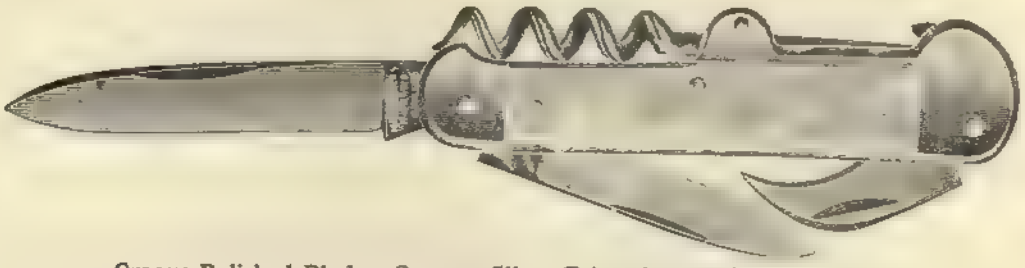
Tree Brand—Combination.

German Silver, Crocus Polished Blades.

No.		Per Doz.
6922—2⅜ inch, **Champagne** Knife	. . . . .	$21.50

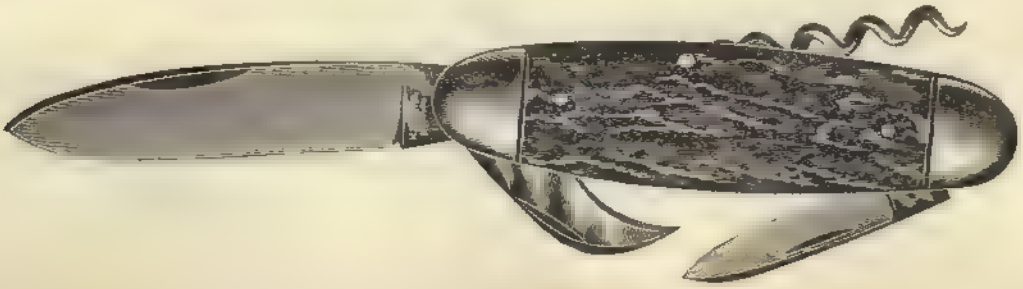
German Silver, Crocus Polished Blades.

No.		Per Doz
5821—3¼ inch, **Champagne** Knife,	. . . . .	$22.00



Crocus Polished Blades, German Silver Trimmings and Linings.

No.		Per Doz
6816—3¼ inch **Champagne** Club Knife, Pearl Handle,	. . . . .	$54.00



Crocus Polished, German Silver Lined and Bolsters.

No.		Per Doz.
6798—3 inch, **Stag** Handle, Combination Cork Screw Knife,	. . . . .	$34.00

All Above One-half Dozen in a Box.

Pocket Knives

No. — Per Doz.

4423P—Pearl Handle, Brass Lined, Polished Blades, ... $8.00

No. — Per Doz.

2577—Stag Handle, Brass Lined, Polished Blades, ... $8.00

No. — Per Doz.

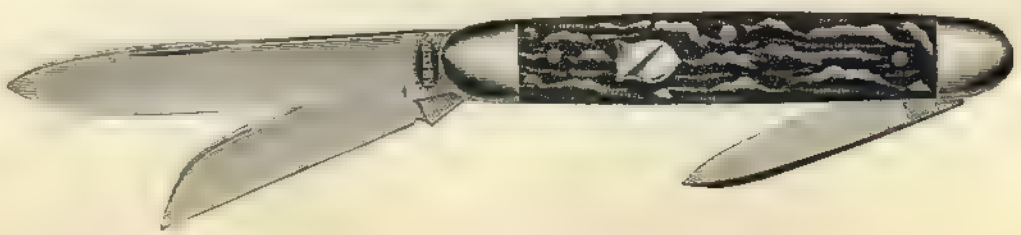
2586P—Pearl Handle, Brass Lined, Polished Blades, ... 16.00

No. — Per Doz

4528P—Pearl Handle, Brass Lined, ... $16.00

No. — Per Doz.

2509 –Stag Handle, Brass Lined, Polished Blades, ... $8.00



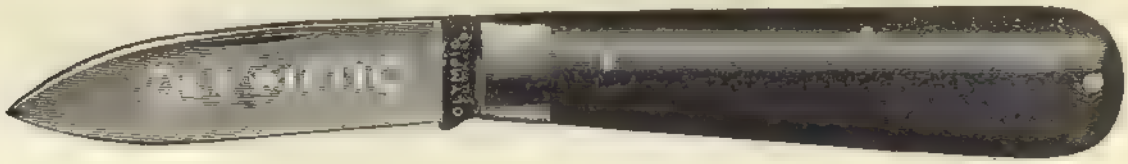
No. — Per Doz.

5527 Stag Handle, Brass Lined, Polished Blades, ... $8.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.



One Blade, Glazed, Steel Lined, Steel Bolster.

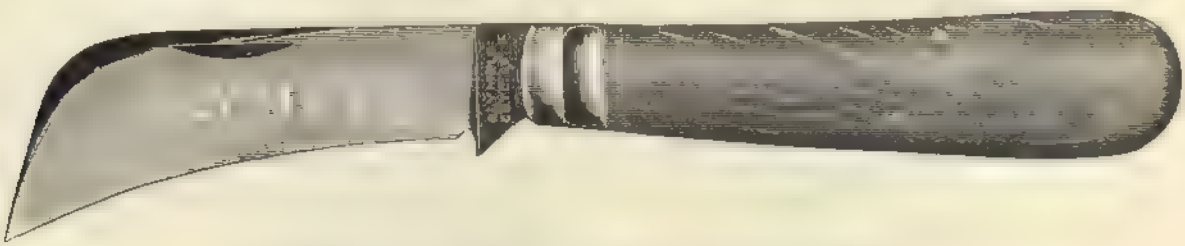
No.		Per Doz.
112—3½ inch, **Ebony** Handle,	. . . . .	$3.75

One Blade, Glazed, Steel Lined, Steel Bolster.

No.		Per Doz
202—3½ inch, **Cocobolo** Handle,	. . . . .	$4.00

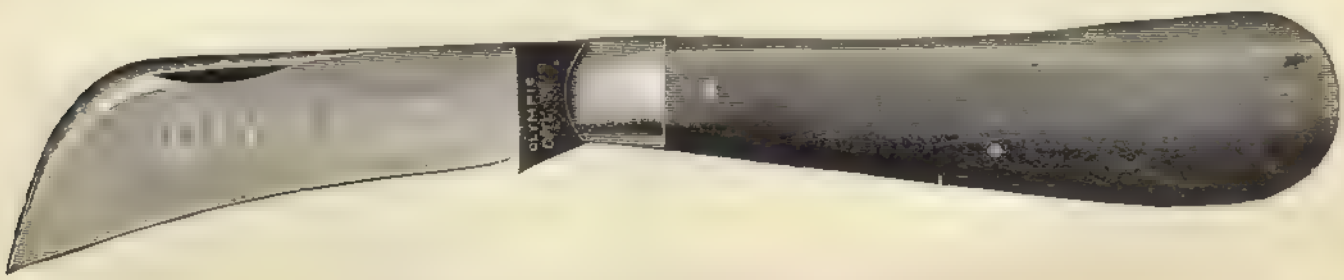
One Blade, Glazed, Steel Lined, Steel Bolster.

No.		Per Doz
205—3¾ inch, **Cocobolo** Handle,	. . . . .	$5.70



Pruning—One Blade, Glazed, Steel Lined, Steel Bolster.

No.		Per Doz.
212—3½ inch, **Cocoa** Handle,	. . . . .	$8.50



Pruning—One Blade, Glazed, Steel Lined, Steel Bolster.

No.		Per Doz.
211—4 inch, **Cocobolo** Handle,	. . . . .	$9 50

All Above One-half Dozen in a Box

Olympic Pocket Knives

Fully Warranted.

Two Blade, Polished, Steel Lined, Steel Bolster.

No. **113**—3½ inch, **Ebony** Handle, ... Per Doz. $4 50

Two Blade, Polished, Steel Lined, Steel Bolster.

No. **203**—3½ inch, **Cocobolo** Handle, ... Per Doz. $4.80

Two Blade, Glazed, Brass Lined, Steel Bolster and Shield.

No. **114**—3½ inch, **Ebony** Handle, ... Per Doz. $6.20

Two Blade, Polished, Steel Lined, Steel Bolster and Shield.

No. **204**—3½ inch, **Cocobolo** Handle, ... Per Doz. $6.50

Two Blade, Glazed, Brass Lined, Steel Bolster and Shield.

No. **206**—3½ inch, **Cocobolo** Handle, ... Per Doz. $7.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade. Polished, Brass Lined, Steel Bolster and Shield.

No.		Per Doz.
325—3½ inch, **Stag** Handle,	. . . . .	$7.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No		Per Doz
115—3⅝ inch, **Ebony** Handle,	. . . . .	$8.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
310—3⅝ inch, **Stag** Handle,	. . . . .	$9.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster, Cap and Shield.

No		Per Doz.
329—3⅝ inch, **Stag** Handle,	. . . . .	$9.50

Two Blade, Half Crocus Polished, German Silver Cap, Bolster and Shield.

No.		Per Doz.
330—3⅝ inch, **Stag** Handle,	. . . . .	$9.50

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Polished, Brass Lined, Steel Bolster and Shield.

No. **116**—4 inch, **Ebony** Handle . . . . . Per Doz. $9.30

Two Blade, Polished, Brass Lined, Steel Bolster and Shield.

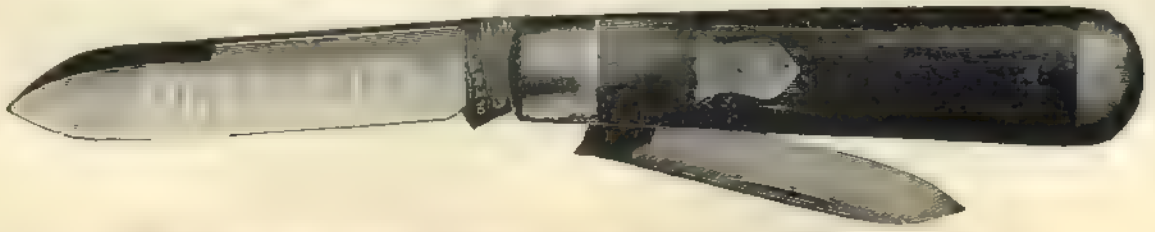
No. **207**—4 inch, **Cocobolo** Handle, ... Per Doz. $9.50

Two Blade, Polished, Brass Lined, Steel Bolster and Shield.

No. **311**—4 inch, **Stag** Handle, ... Per Doz. $10.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster, Cap and Shield.

No. **124**—3½ inch, **Ebony** Handle, ... Per Doz. $10.00



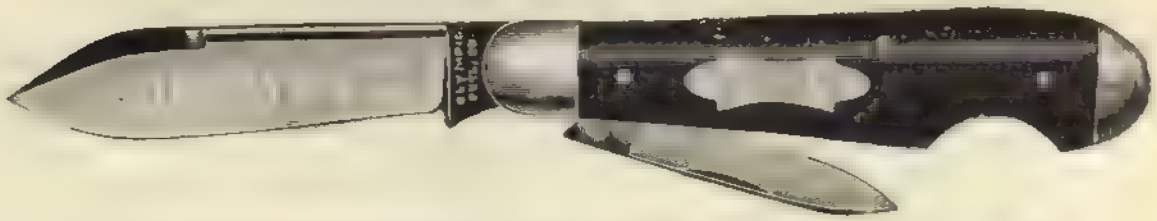
Two Blade, Half Crocus Polished, German Silver Cap, Bolster and Shield.

No. **128**—3½ inch, **Ebony** Handle, ... Per Doz. $10.00

All Above One-half Dozen in a Box

Olympic Pocket Knives

Fully Warranted.



Two Blade, Polished, Brass Lined, Steel Cap and Bolster, German Silver Shield.

No.		Per Doz.
122	3⅝ inch, **Ebony** Handle, Easy Opener,	$10.00

Two Blade, Polished, Brass Lined, Steel Bolster, German Silver Shield.

No.		Per Doz
338	3½ inch, **Stag** Handle, one Blade with Cap Puller,	$10.00

Two Blade, Polished, Brass Lined, Steel Bolster, German Silver Shield.

No.		Per Doz
339	3½ inch, **Stag** Handle, Small Blade Patent Reamer,	$10 00

Two Blade, Polished, Brass Lined, Steel Bolster, German Silver Shield.

No.		Per Doz
312	4 inch, **Stag** Handle,	$10 00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

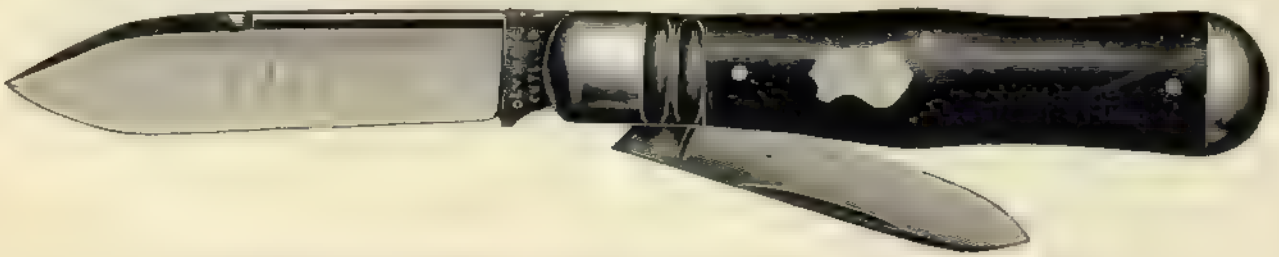
Fully Warranted.

Two Blade, Polished, Brass Lined, Steel Bolster, German Silver Shield.

No.		Per Doz.
208—3⅝ inch, **Cocoa** Handle, with Chain, Easy Opener,	. . . . .	$10 50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster, Cap and Shield.

No.		Per Doz.
200—3⅝ inch, **Cocoa** Handle,	. . . . .	$10.70



Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster, Cap and Shield.

No.		Per Doz.
121—3⅞ inch, **Ebony** Handle,	. . . . .	$12.50

Two Blade, Half Crocus Polish, Brass Lined, Steel Cap and Bolster, German Silver Shield.

No.		Per Doz.
201—3½ inch, **Cocoa** Handle,	. . . . .	$9.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No		Per Doz
129—3⅛ inch, **Ebony** Handle,	. . . . .	$9.50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No		Per Doz
209—3⅛ inch, **Cocoa** Handle,	. . . . .	$9.50

Two Blade, Half Crocus Polished, Brass Lined, Steel Cap and Bolster, German Silver Shield.

No		Per Doz.
210—3⅛ inch, **Cocobola** Handle,	. . . . .	$9 50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No		Per Doz.
332—3 inch, **Stag** Handle,	. . . . .	$10.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No		Per Doz.
409—3 inch, **Pearl** Handle,	. . . . .	$20 00

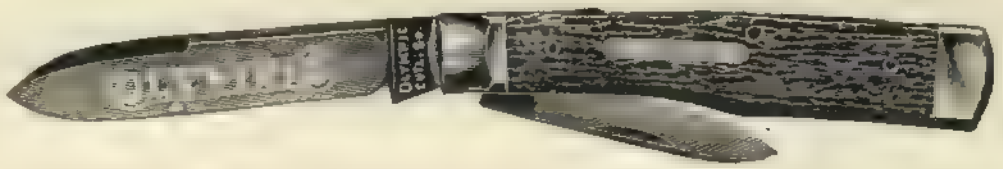
All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
335—3⅛ inch, **Stag** Handle,	. . . . .	$10.00



Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
333—3⅛ inch, **Stag** Handle,	. . . . .	$10.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
410—2⅝ inch, **Pearl** Handle,	. . . . .	$13.50

Two Blade, Half Crocus Polished, Brass Lined, Steel Bolster and Cap, German Silver Shield.

No.		Per Doz
100—3⅛ inch, **Ebony** Handle,	. . . . .	$9.00

Two Blade, Half Crocus Polished, Brass Lined, Steel Bolster and Cap, German Silver Shield.

No.		Per Doz.
103—3⅛ inch, **Ebony** Handle,	. . . . .	$9.00

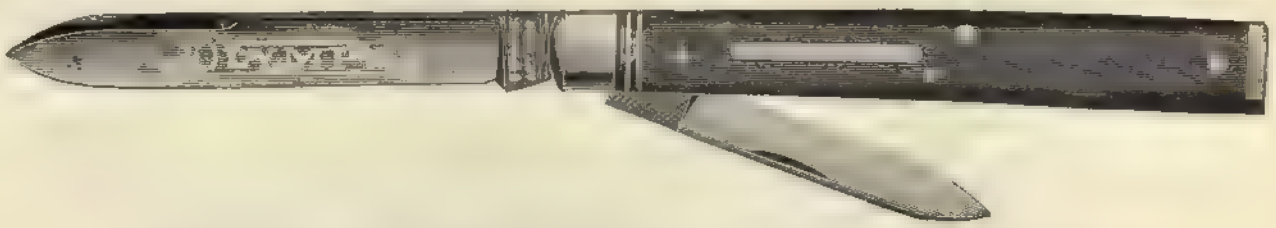
All Above One-half Dozen in a Box

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, Steel Cap and Bolster, German Silver Shield.

No.		Per Doz.
300—3⅝ inch, **Stag** Handle,	. . . . .	$10.00



Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz
109—3¾ inch, **Ebony** Handle,	. . . . .	$11.50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
336—3⅝ inch, **Stag** Handle,	. . . . .	$12.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
337—3⅝ inch, **Stag** Handle,	. . . . .	$12 00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
126—3½ inch, **Ebony** Handle,	. . . . .	$12.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz.
334	3½ inch, **Stag** Handle,	$12.50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz
125	3¾ inch, **Ebony** Handle,	$12.50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz
328	3¾ inch, **Stag** Handle,	$13.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Cap, Bolster and Shield.

No.		Per Doz
123	3⅞ inch, **Ebony** Handle,	$14.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No. — Per Doz.

500—2¾ inch, **Smoked Pearl** Handle, ... $12 00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No. — Per Doz.

403—2¾ inch, **Pearl** Handle, ... $12.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster.

No. — Per Doz.

315—2¾ inch, **Stag** Handle, ... $7.30

Two Blade, Polished, Brass Lined, German Silver Bolster.

No. — Per Doz.

404—2¾ inch, **Pearl** Handle, ... $12.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No. — Per Doz.

118—3 inch, **Ebony** Handle, ... $7.30

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No. — Per Doz.

314—3⅛ inch, **Stag** Handle, ... $8.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

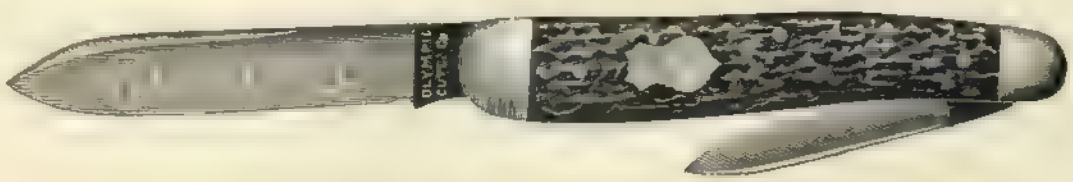
No.		Per Doz
309	3¼ inch, **Stag** Handle,	$9.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz
111	3⅜ inch, **Ebony** Handle,	$9.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
117	3⅜ inch, **Ebony** Handle,	$9.00



Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
313	3⅜ inch, **Stag** Handle,	$9.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.

No.		Per Doz.
344	3⅜ inch, **Stag** Handle,	$10.00

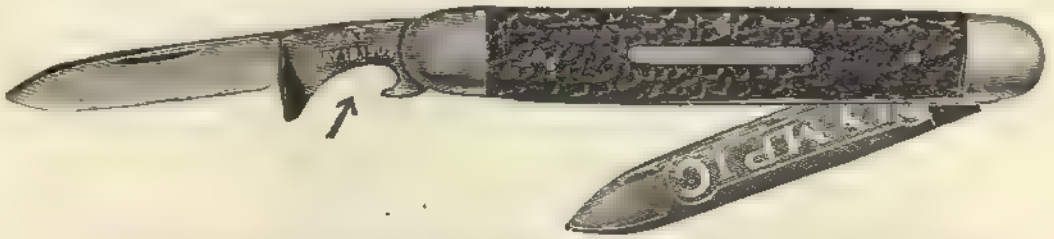
All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted

Two Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.

No.		Per Doz.
346	—3⅛ inch, **Stag** Handle,	$10.00



Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

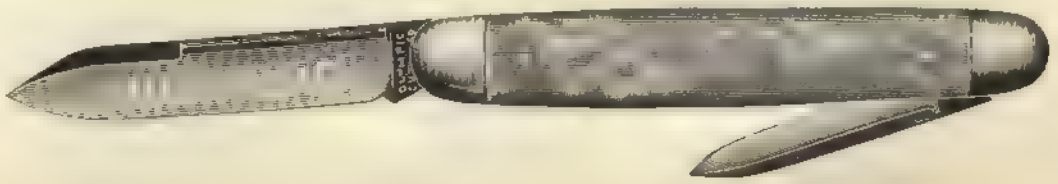
No.		Per Doz.
340	—3½ inch, **Stag** Handle, One Blade with Patent Cap Puller,	$10 00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
345	—3⅜ inch, **Stag** Handle,	$10.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
343	—3⅜ inch, **Stag** Handle,	$12.00
414	—3⅜ inch, **Pearl** Handle,	20.00



Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster.

No.		Per Doz.
501	—3½ inch, **Smoked Pearl** Handle,	$10.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster.

No.		Per Doz.
405—3½ inch, **Pearl** Handle,	. . . . .	$16.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster.

No.		Per Doz.
420—3½ inch, **Pearl** Handle,	. . . . .	$19.00

Two Blade, Half Crocus Polished, Brass Lined, No Tips.

No.		Per Doz.
406—3⅛ inch, **Pearl** Handle,	. . . . .	$18.00

Two Blade, Half Crocus Polished, Brass Lined, No Tips.

No.		Per Doz.
407—3⅛ inch, **Pearl** Handle,	. . . . .	$24.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.

No.		Per Doz.
413—3⅜ inch, **Pearl** Handle,	. . . . .	$20.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Two Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.

No.		Per Doz.
601	—3⅜ inch, **Ivory** Handle,	$9.75

Two Blades, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

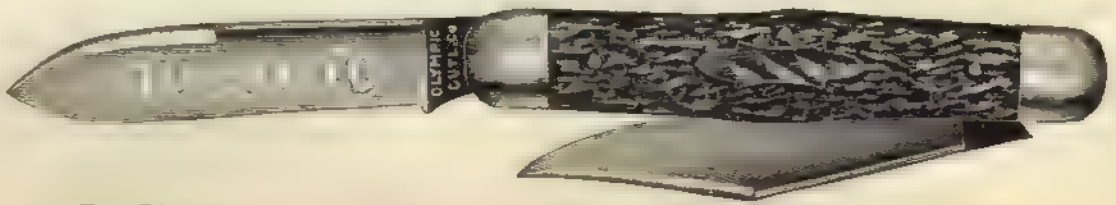
No.		Per Doz.
108	—3¾ inch, **Ebony** Handle,	$10.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
106	—3¾ inch, **Ebony** Handle,	$11.50
305	—3¾ inch, **Stag** Handle,	12.00

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
342	—3⅝ inch, **Stag** Handle,	$12.00



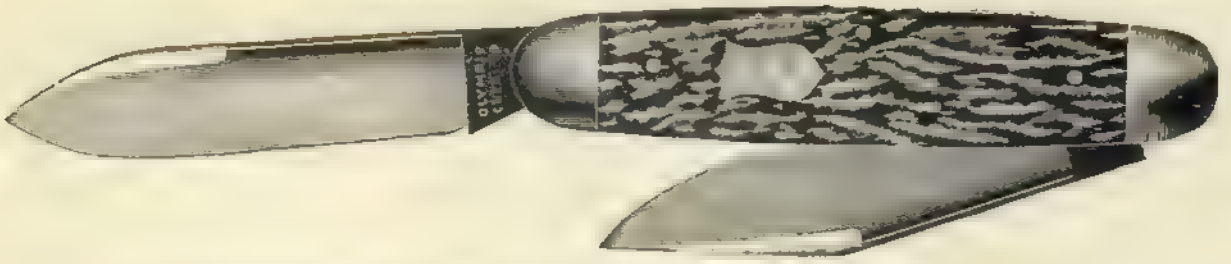
Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
326	—3½ inch, **Stag** Handle,	

All Above One-half Dozen in a Box

Olympic Pocket Knives

Fully Warranted.



Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
327—3⅝ inch, **Stag** Handle,	. . . . .	$13.50

Two Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz
331—4 inch, **Stag** Handle,	. . . . .	$16.00

THREE BLADE CATTLE.

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No		Per Doz
301	3⅝ inch, **Stag** Handle, ...	$13 75
400	—3⅝ inch, **Pearl** Handle,	30 00

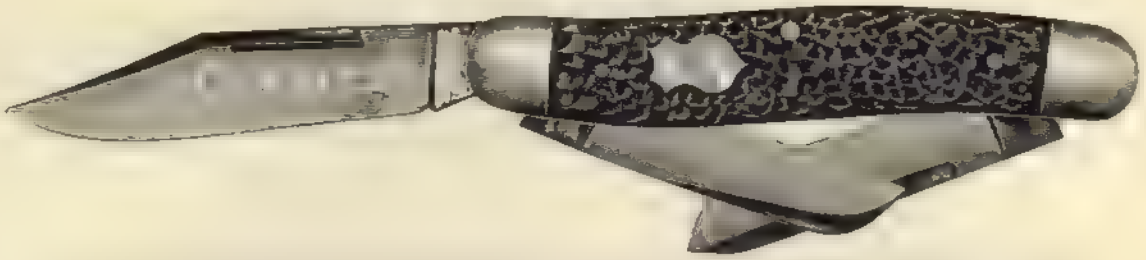
Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No		Per Doz.
101	3⅝ inch, **Ebony** Handle, ...	$13.75
302—3⅝ inch, **Stag** Handle,	. . . . .	14.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

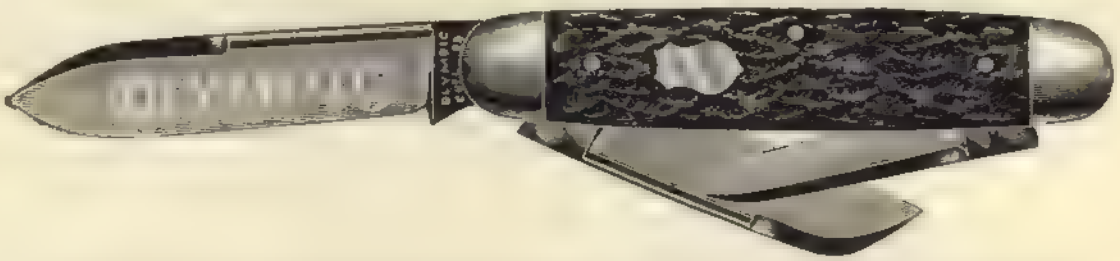


Three Blade Cattle, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
104	3⅝ inch, **Ebony** Handle,	$16 00
324	3⅝ inch, **Stag** Handle,	16.00

Three Blade Cattle, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
322	4 inch, **Stag** Handle,	$16.00



Three Blade Cattle, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
357	3½ inch, **Stag** Handle,	$18.50

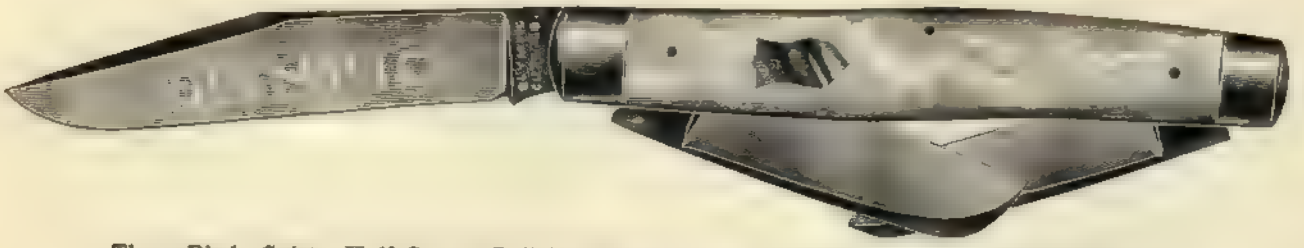
Three Blade Cattle, Half Crocus Polished, German Silver Lining, Bolsters and Shield.

No.		Per Doz
321	4 inch, **Stag** Handle,	$19.00

All Above One-half Dozen in a Box

Olympic Pocket Knives

Fully Warranted.

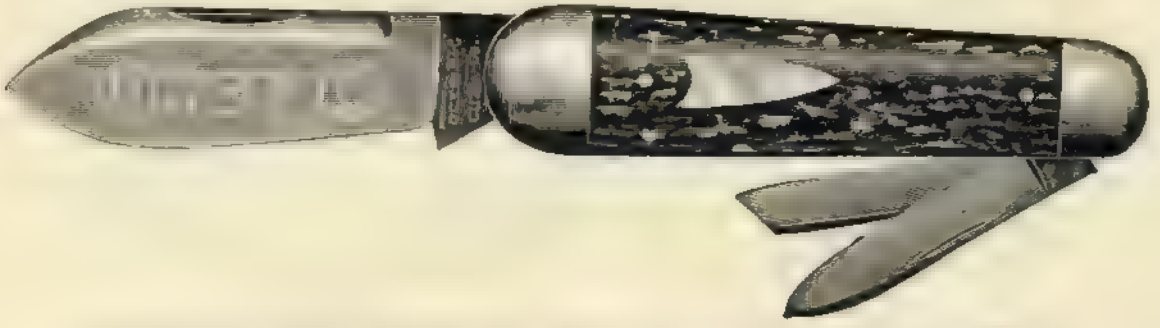


Three Blade Cattle, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
355—4 inch, **Stag** Handle,		$26.00
421—4 inch, **Pearl** Handle,		38.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
341—4 inch, **Stag** Handle, One Blade Patent Reamer,		$20 00



Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
120—3⅝ inch, **Ebony** Handle,		$16.00
323—3⅝ inch, **Stag** Handle,		16.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
356—4 inch, **Stag** Handle,		$24 00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Three Blade, Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz.
412	—2¾ inch, **Pearl** Handle,	$17.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
352	—3 inch, **Stag** Handle,	$13.50

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
354	—3⅛ inch, **Stag** Handle,	$13.50

Three Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.

No.		Per Doz.
320	—3 inch, **Stag** Handle,	$17.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
319	—3⅛ inch, **Stag** Handle,	$16.00
402	—3⅛ inch, **Pearl** Handle,	21.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

No.	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.	Per Doz.
415—3 inch, **Pearl** Handle,		$24.00

No.	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.	Per Doz.
348—3¼ inch, **Stag** Handle,		$16 00
416—3¼ inch, **Pearl** Handle,		24 00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.	Per Doz
349—3¼ inch, **Stag** Handle,		$16.00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.	Per Doz.
351—3⅜ inch, **Stag** Handle,		$16.00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.	Per Doz.
408—3⅜ inch, **Pearl** Handle,		$24.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

No.	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.	Per Doz
119—3⅛ inch, **Ebony** Handle,		$15.00
317—3⅜ inch, **Stag** Handle,		15.00
419—3⅜ inch, **Pearl** Handle,		30.00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.	Per Doz
350—3½ inch, **Stag** Handle,		$17.00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Tips and Shield.	Per Doz.
600—3⅜ inch, **Tortoise Shell** Handle,		$15.00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.	Per Doz.
353—3¼ inch, **Stag** Handle,		$17.00

No	Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.	Per Doz
417—3¼ inch, **Pearl** Handle,		$30.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
107—3¾ inch, **Ebony** Handle,	. . . . .	$14.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
102—3¾ inch, **Ebony** Handle,	. . . . .	$15.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolster and Shield.

No.		Per Doz.
307—3¾ inch, **Stag** Handle,	. . . . .	$15.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
316—3¾ inch, **Stag** Handle,	. . . . .	$15.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
318—3⅝ inch, **Stag** Handle,	. . . . .	$15.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
304—3¾ inch, **Stag** Handle,	. . . . .	$15.50

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz
306—3¾ inch, **Stag** Handle,	. . . . .	$16.00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
347—3⅝ inch, **Stag** Handle,	. . . . .	$18.00

All Above One-half Dozen in a Box.

Olympic Pocket Knives

Fully Warranted.

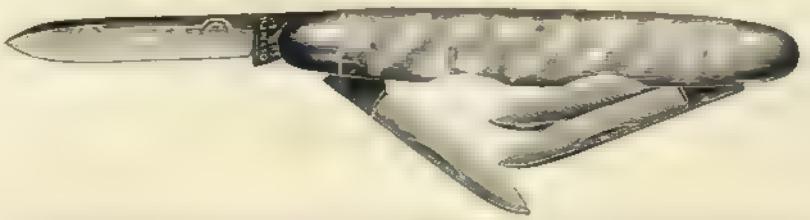
Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
418—3½ inch, **Pearl** Handle,	. . . . .	$30 00

Three Blade, Half Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
308—**Lock Back,** 3¾ inch, **Stag** Handle,	. . . .	$24.00

FOUR BLADE.



Four Blade, Full Crocus Polished, Brass Lined, German Silver Bolsters.

No.		Per Doz.
411—2¾ inch, **Pearl** Handle,	. . . . .	$21.00

Four Blade, Full Crocus Polished, Brass Lined, German Silver Bolsters and Shield.

No.		Per Doz.
401—4 inch, **Pearl** Handle,	. . . . .	$36 00

All Above One-half Dozen in a Box.

WM. T. WOOD & CO.'S ICE TOOLS.

To the ice-harvester it is of the utmost importance that he possesses the most perfect working tools he can buy. None but the very best are economical to him. The cutting season is short, the weather is cold, the men are hurried, and an unnecessary delay on account of unmanageable or imperfect tools is both aggravating and expensive.

As New England agents for Wm. T. Wood & Co.'s celebrated ice tools we wish to state that our large experience in meeting the requirements of the most exacting ice-men in the country and our determination to work for the best posssible results to our customers, have placed us in a leading position as manufacturers' agents which is very gratifying and satisfactory to ourselves and is an assurance to our customers that nothing but the very best will be used in filling their orders.

The prices of our ice tools are as low as strictly first-class work can be afforded, and for what we give for the money, we believe they are the cheapest ice tools in the market.

We repair all kinds of ice tools, whether of our own make or others', promptly, well, and at lowest prices It pays the user to get his repairing done at our factory, instead of allowing the local blacksmith to do it.

☞Send early in the fall and avoid freight delays and rush of work at factory.

We will furnish shipping tags properly addressed to any applicant. By using these tags on ice tools sent us for repairs, complications and unnecessary expense will be avoided.

"How to Harvest Ice," a sixteen page pamphlet containing valuable information to any one interested in ice harvesting, sent by mail to those applying for same.

TELEGRAPH CODE.

Against each article shown in the following pages we affix a code word for convenience in ordering by wire.

By means of the code which follows, with the code names of our ice tools, we provide a way by which the cost of orders by telegraph may be reduced to a minimum.

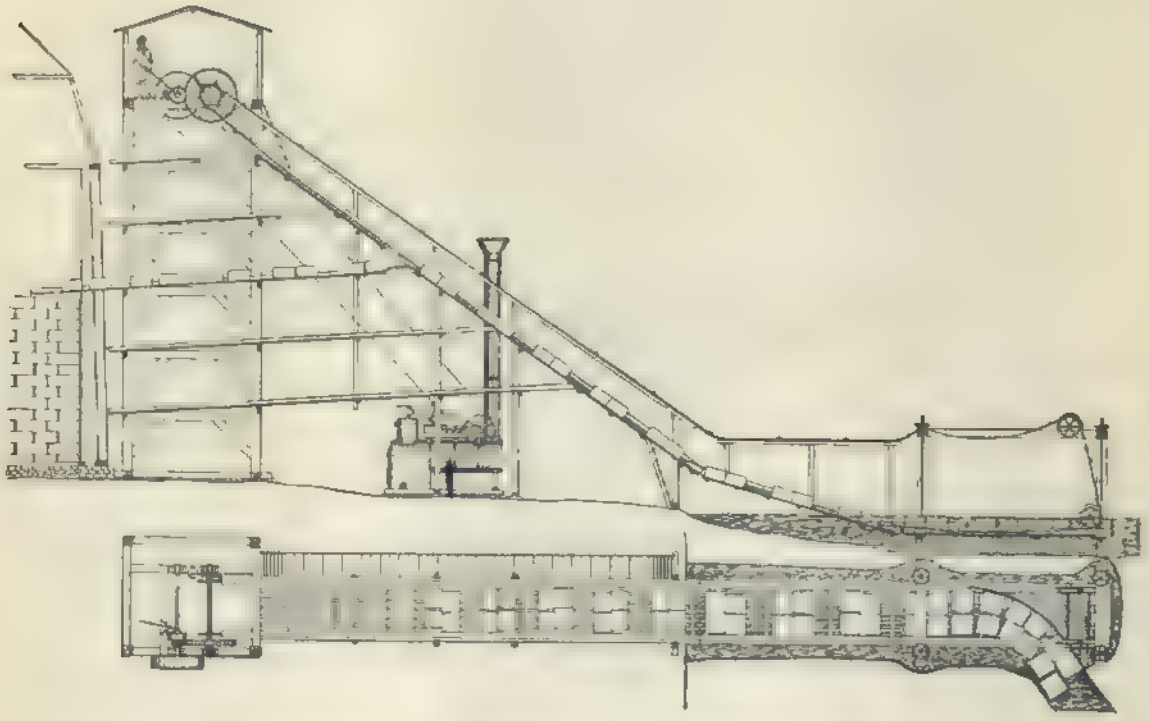
	Code Word		Code Word
Ship by first freight the following tools	FREIGHT	1/2 dozen	DIRGE
Ship by first steamer the following tools	STEAMER	1/3 "	DONNA
Ship by first express the following tools	EXPRESS	1/4 "	DORICK
Ship by first express C.O.D. the following tools	COLLECT	2/3 "	DRUG
1/12 dozen	DAGON	3/4 "	DUKE
1/6 "	DARBY	1 1/2 "	DUMB
1/4 "	DECIMAL	1 1/3 "	DUNDEE
1/3 "	DERBY	2 1/2 "	DYER

Important In ordering ice tools priced in Price List "per dozen," use code words for fractions of a dozen. Where one or more even dozen are to be ordered, the numeral alone will indicate the number of dozen. Thus, "five hamlet" will mean five dozen 4½ feet ice hooks; whereas "dirge hamlet" should be used to indicate an order for five ice hooks only.

Prefix to code word any special freight line, steamer, or express, if necessary.

Upon receipt of telegraph messages ordering tools, if we cannot ship immediately, we will wire answer

ICE ELEVATING MACHINERY.



It has now become a necessity for ice gatherers to use steam power and the very best machinery for elevating ice, if they would compete with their rivals, and make their business profitable. One short-crop season will repay the investment made many times over, while in an ordinary season the machinery will be found equally convenient, and a great economizer of time and money.

Elevators are alike as to power required when used under the same conditions; and the power necessary for them is governed by length and height of incline, dimensions of ice-cakes, and number of cakes on each bar. Their capacity is limited only by the rapidity with which the ice can be fed to the chain and stored in the house.

Endless chains when used on elevator inclines are provided with oak hold-bars, six feet apart, and run at the rate of 22 bars per minute. Elevating machinery may be placed above the plate in the house, on a tower in front or at the side of the house, or at the foot of the tower. The best results are accomplished by placing the elevator in either of the former positions, applying the power in a direct line with the lift.

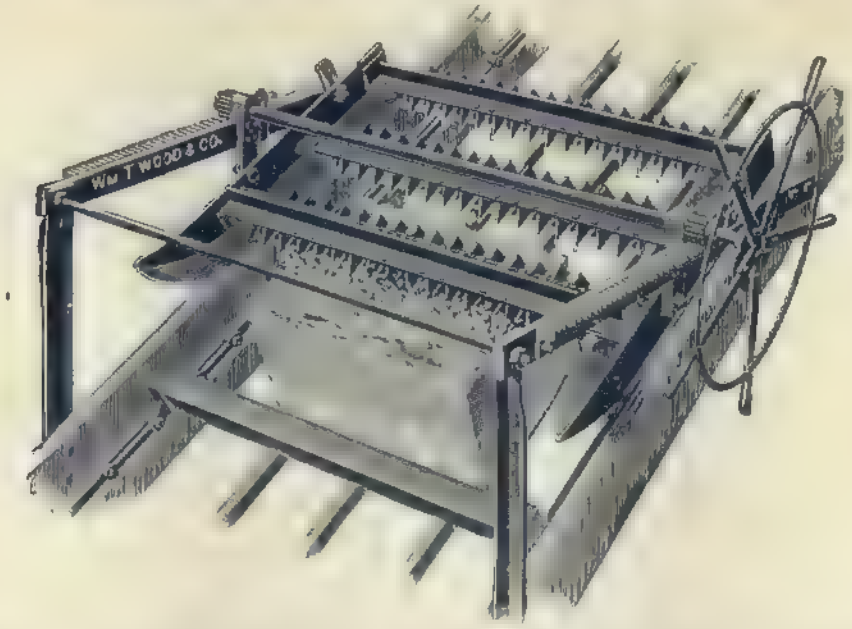
The above cut illustrates the new side-feed elevators. This new method of feeding ice over the side of the apron instead of at the end has overcome the only objection to, and retains the advantages of, the undershot elevators. The incline is constructed precisely the same as for undershot elevators and is different from the latter only in having a water-box extending fifteen or twenty feet beyond the ordinary apron. We claim not only that this elevator can be fed as fast as the overshot style, but with greater ease and economy. If the ice is floated into the canal forty feet from the water-box, the elevator chains "will do the rest."

Attention is invited to the line, Ice Conveyors, Perpendicular Elevators, Endless-Chain Lowering Machines, Automatic Lowering Machines, Hoisting and Lowering Gig, also, to the relative merits of side-feed, overshot, and undershot elevators, all of which are illustrated and described in a special elevator catalogue and price list, which will be mailed on application.

Should you favor us with an order, we would respectfully impress upon you the importanc of entering the same at an early date.

Drawings for a tower and incline will be sent when requested, if accompanied with an order, without charge.

WOOD'S EUREKA ELEVATOR PLANERS.

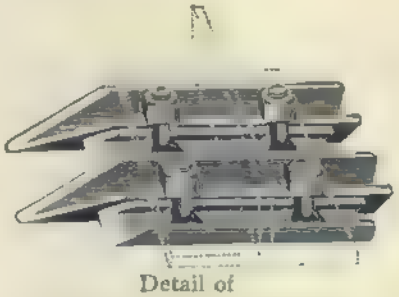


The carriage cannot "give." The knives must stand to their work without the slightest tendency to lift, for the pressure of the ice against the points is in the direction of holding them to the work, rather than to cause them to escape from it.

The stop against which the carriage is arrested can instantly be set to make the ice finish at any desired thickness. If the operator prefers to vary the thickness of successive cakes he can easily hold the carriage by the wheel at the proper point without depending on the stop.

If necessary to roll the carriage so as to have the knives cut a bad cake, it is done quickly and easily, for the weight does not have to be lifted

Detail of Fluted Knife (lower cut), and Wedge Knife (upper cut with bolts).



Detail of
Wood's Eureka Cutter Bar.

The Wood's Eureka cutter bar makes an absolutely first-class knife.

The fluted teeth are made from *best quality tool steel.* They are much more quickly ground than solid teeth can be. The points are rounded just enough to be very strong and to make a groove that will not encourage a split in the cake. Each tooth is independent, and can be removed in an instant, as the bolts need only to be loosened.

No. 251, Wood's Eureka Elevator Planer with 1 knife	(AIDA)	Our net price, each,	$125.00
" 252, " " " " " 2 knives	(AIDET)	" "	150.00
" 253, " " " " " 3 "	(AIGLE)	" "	175.00
" 254, " " " " " 4 "	(AIGON)	" "	200.00
" 255, " " " " " 5 "	(AIGOST)	" "	225.00
" 256, " " " " " 6 "	(AIGUND)	" "	250.00
" 257, " " Cutter Bars, complete,	(AIKEN)	" "	25.00
" 258, Patent Eureka Flanged Teeth	(AILMER)	" "	.75
" 259, Tent Head Bolts for Flanged Teeth	(AIMAR)	" "	.05
" 262, Patent Open-top Teeth	(AIMWELL)	" "	.50
" 263, Patent Wedge "	(AIMWORTH)	" "	.50
" 264, Countersunk Sq. Hd. Bolts for Wedge Teeth	(AINOS)	" "	.05

"THE ICE KING" ICE PLOW.

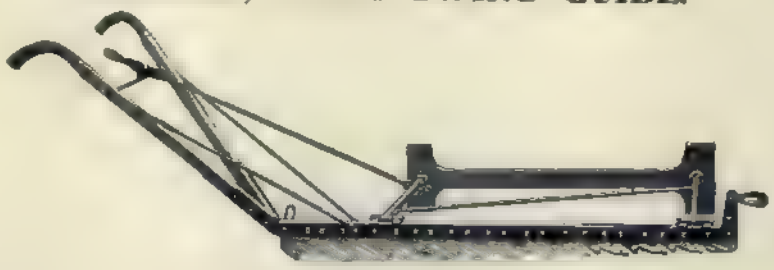
Weight, complete, with case, 115 lbs.

This substantially made and excellent ice plow is put upon the market by us in response to an urgent demand for a first-class, fast-cutting ice plow at a low price — for the use of dairymen, butchers and farmers — and because there is now no low-priced implement in use that satisfies these requirements.

"The Ice King" is made after the plan of the high-priced machines, although the teeth are not ground and polished, as in the ice-men's plows, but are left blue; and while the guide has no brace, it is made in a manner to be sufficiently stiff.

No. 315.	8-in., 5 cutting teeth, 22-in. swing guide	(ALABASTER)	Our net price, each, $28.50
" 316.	10 " 5 " " " " " "	(ALADDIN)	" " 33.50
" 317.	12 " 5 " " " " " "	(ALAMAN)	" " 38.00
" 320.	8 " 5 " " 14 to 22-in. adjustable swing guide	(ALAMILLO)	" " 30.00
" 321.	10 " 5 " " 14 to 22 " " " "	(ALAMOS)	" " 35.00
" 322.	12 " 5 " " 14 to 22 " " " "	(ALAND)	" " 40.00
Nos. 315, 316 and 317 without guide, deduct from prices		(ALANUS)	" " 5.00

MARKER, WITH SWING GUIDE.



Weight, complete, with case, 145 lbs.

No. 355.	4-in., 11 cutting teeth, with 22-in. swing guide	(ALDANA)	Our net price, each, $58.00
" 358.	4 " 11 " " " 22 and 32-in. swing guide	(ALDANUS)	" " 66.00
" 359.	4 " 11 " " " 22 x 32 " pat. extension swing guide	(ALDAMAN)	" " 61.40
" 360.	Adjustable depth gauges for markers	(ALDEN)	" " 1.00
" 362.	Extra guides, 16 to 28 in., not adjustable	(ALDINI)	" " 7.50
" 363.	" " 30 to 36 " " "	(ALDRED)	" " 8.00
" 364.	" " 40 to 44 " " "	(ALDRIDGE)	" " 10.00
" 365.	" 22 x 32 patent extension guides	(ALEPPO)	" " 10.50
" 366.	" patent extension swing guides for markers, add to price regular guides	(ALEXIS)	" " 3.00

6-INCH PLOW. 9 TEETH.

Weight, with case, 115 lbs.

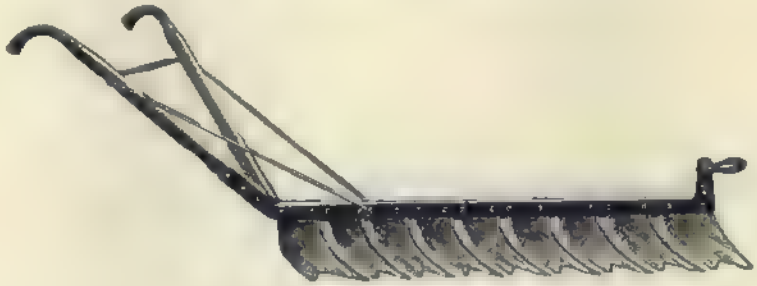
No. 370.	5-in. cast steel plows, 10 cutting teeth	(ALGONA)	Our net price, each, $50.00
" 371.	6 " " " " 9 " "	(ALIEN)	" " 48.00

7-INCH PLOW. 7 TEETH.

Weight, with case, 105 lbs.

No. 372. 6 in. cast steel plows, with 7 cutting teeth . . . . . (AMBER) . . . Our net price, each, $42.00
" 373. 7 " " " " " " 7 " " . . . . . (ANDES) . . . " " 44.00

8-INCH PLOW. 8 TEETH.



Weight, with case, 115 lbs.

No. 374. 8 in. cast steel plows, 8 cutting teeth . . . . . (ANCHOR) . . . Our net price, each, $50.00

8-INCH PLOW. 7 TEETH.

Weight, with case, 115 lbs.

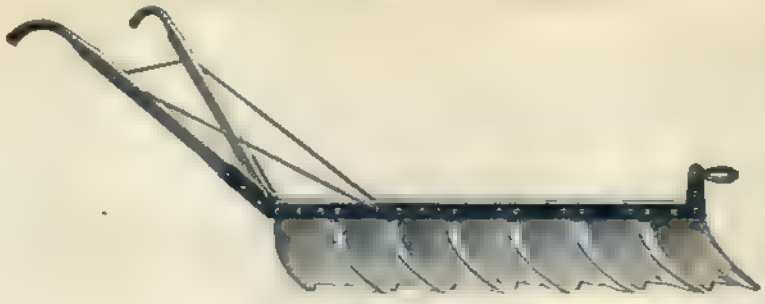
No. 375. 8 in. cast steel plows, 7 cutting teeth . . . . . (ANDOVER) . . . Our net price, each, $48.00

9-INCH PLOW. 7 TEETH.

Weight, with case, 120 lbs.

No. 376. 9 in. cast steel plows, 7 cutting teeth . . . (ANVIL) . . . Our net price, each, $51.00

10-INCH PLOW. 6 TEETH.



Weight, with case, 125 lbs.

No. 377. 10-in. cast steel plows, 6 cutting teeth . . . . . (APEX) . . . Our net price, each, $53.00

12-INCH PLOW. 5 TEETH.

Weight, with case, 125 lbs.

No. 379. 12-in. cast steel plows, 5 cutting teeth . . . . . (APOLLO) . . Our net price, each, $58.00
" 381. 14 " " " 5 " " . . . . . (APPLE) . . . " " 65.00
" 382. 16 " " " 5 " " . . . . . (ARAB) . . . " " 70.00

SWING GUIDE PLOWS.

6 in.; weight, with case, 135 lbs.

No. 385. 6-in. plows, 7 cutting teeth, with swing guide . . . (ARCADE) . . Our net price, each $50.50

7 in.; weight, with case, 140 lbs.

No 386. 7-in. plows, 7 cutting teeth, with swing guide . . . (ARCTIC) . . . Our net price, each, $52.50

8 in.; weight, with case, 150 lbs.

No. 388. 8-in. plows, 7 cutting teeth, with swing guide . . . (ARION) . . . Our net price, each, $56.50

9 in.; weight, with case, 155 lbs.

No. 389. 9-in. plows, 7 cutting teeth, with swing guide . . . (ARTIST) . . . Our net price, each, $59.50

10 in.; weight, with case, 160 lbs.

No 391 10-in. plows, 6 cutting teeth, with swing guide . . . (ASTRAL) . . . Our net price, each, $61.50

12 in.; weight, with case, 170 lbs.

No. 393. 12-in. plows, 5 cutting teeth, with swing guide . . . (ATOP) . . . Our net price, each, $66.50

When two guides for one plow are wanted, in order that two-sized cakes may be cut, the prices for the additional guides will be as follows:

No. 396. Extra Guides, 16 to 28-in. wide . . . . . (ATTAIN) . . . Our net price, each, $7.50
" 397. " " 30 " 36 " " . . . . . (ATTEND) . . . " " 8.00

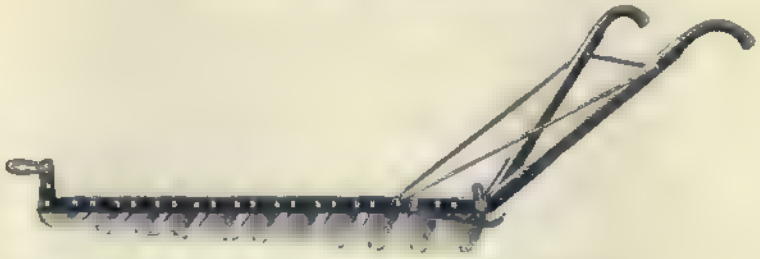
It is not practicable to use guides on plows wider than 36 in.

No. 399. Connections for Guides, including cross-bar . . . . (ATTIC) . . . Our net price, per set, $2.00

PATENT EXTENSION SWING GUIDE.

No. 402. Patent Extension Swing Guides for Plows, extra price over regular Guides . . . . . (ATTIRE) . . Our net price, each, $3.00
" 404. Adjustable Stiff Guides for Plows (made to order) . . (AUDITOR) . . " " 7.50
" 405. Stationary Guides for Plows, not adjustable (made to order) . (AUSTIN) . . " " 5.50

GROOVE CLEARER.



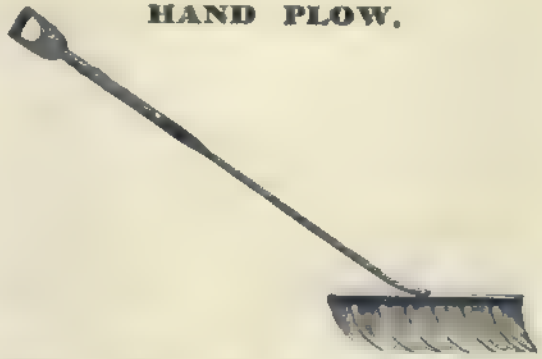
No. 369. 5-inch, 10 tooth Groove Clearer . . . . . (ALGARDO) . . Our net price, each, $50.00

ONE MAN PLOW.

Weight, with case, 100 lbs., complete.

No. 406. 6-inch Man Plows, 7 cutting teeth, 22-inch swing guide . (AVAIL) . . Our net price, each, $40.00

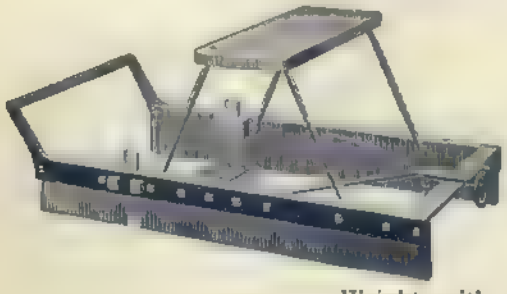
HAND PLOW.

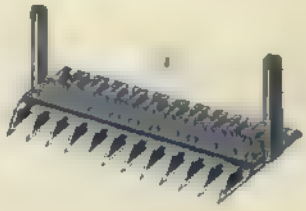


Weight of 6-inch Hand Plow, with case, 18 lbs.

No. 408. Cast Steel Hand Plows, 5-inch . . . . . (AVANT) . . Our net price, each, $14.50
" 409. " " 6 " . . . . . (AVOW) . . " " 15.00
" 410. " " 7 " . . . . . (AWAIT) . . " " 16.00

FIELD ICE PLANERS.



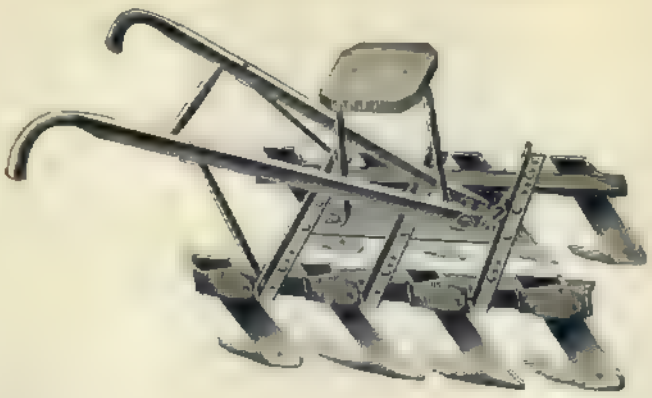


Weight, with case, 160 lbs., complete.

No. 280. Field Ice Planers, 22 inches wide, with 1 patent Eureka Knife Bar, complete . . . . . (AINOVIS) . . Our net price, each, $35.00
" 282. Extra patent Eureka Knife Bars, complete, with Eureka Flanged Teeth for 22-inch Field Planer . . . . . (AINOYT) . . " " 15.00

For prices of Depth Gauges, Planer Teeth and Bolts, see Nos. 258 and 259, page 265; and No. 360, page 266.

WOOD'S TWIN-CUT PLOW.



All twin-cut plows cut cakes 14, 16, 18, 20, 22, 24, 26, 28, 30, or 32 in. wide by adjusting width of frame.

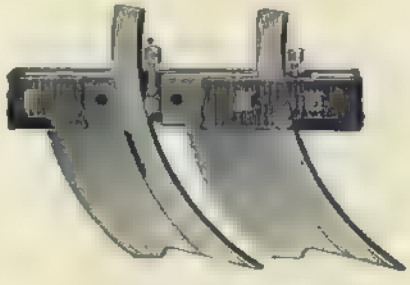
No. 300.	8-in., Two Cutters each side	(AKASSA)	Our net price, each,	$20.00
" 301.	9 " Three " " "	(AKEN)	" "	24.00
" 302.	10 " Four " " "	(AKERMAN)	" "	28.00
" 306.	8 " Extra Teeth	(AKKA)	" "	1.00
" 307.	9 " " "	(AKOLA)	" "	1.00
" 308.	10 " " "	(AKOSTA)	" "	1.00

PATENT PERFECTION ICE MARKERS.

Patent Perfection Marker, with 22 x 32 in. Patent Extension Guide.

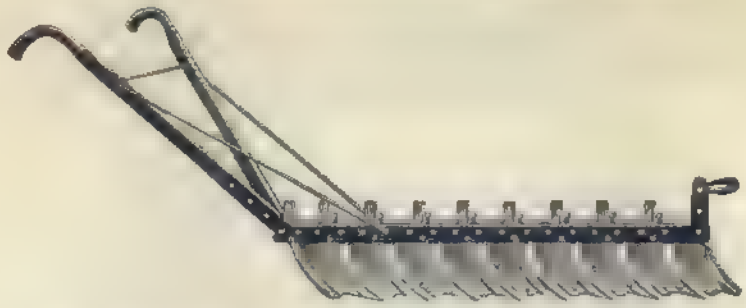
No. 330	3½ in Marker, 11 cutting teeth, 22-in. swing guide	(ALBENGA)	Our net price, each,	$70.00
" 332.	3½ " " 13 " " 22 x 32 Pat. Exten swing guide	(ALBINA)	" "	73.00
" 334.	Extra 22 x 32 Patent Extension swing guides	(ALBION)	" "	10.50
" 336.	" Perfection Teeth for Markers	(ALBIS)	" "	2.00

Detail of Teeth, with Ball-Bearing Fastening.



The inserted teeth used in our Perfection Plows and Markers are fitted so nicely, and the patent ball-bearing fastening is so positive in its binding power, that the teeth are as firm as if they were solid. Duplicate teeth always on hand.

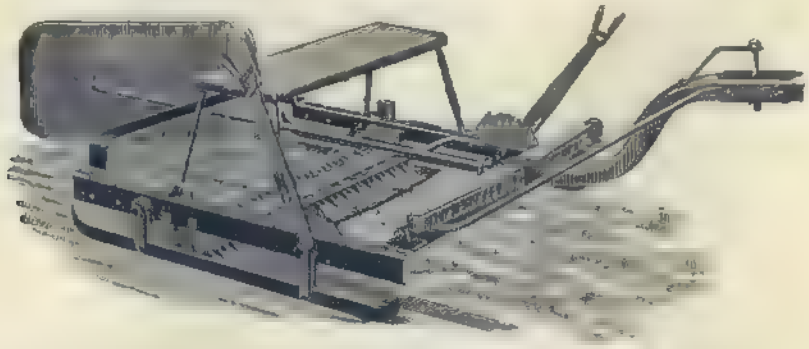
PATENT PERFECTION ICE PLOW.



8 in. Patent Perfection Plow, 8 teeth, with Patent Hind Heel.

No. 338.	8 in. Perfection Plows, 8 Cutting Teeth	(ALCALA)	Our net price, each, $60 00
" 339.	10 " " " 6 " "	(ALCAMO)	" " 61.00
" 340.	12 " " " 5 " "	(ALCANIZ)	" " 62 00
" 343.	8 " No P Plows, 8 Teeth, Patent Extension Guide, 22 x 32 in	(ALCAZAR)	" " 72 00
" 344.	10 " " Q " 6 " " " " 22 x 32 "	(ALCEDO)	" " 73.00
" 345.	12 " " R " 5 " " " " 22 x 32 "	(ALCESTIS)	" " 74.00
" 348.	Extra Perfection Teeth, for 8 in. Plows	(ALCORN)	" " 2.75
" 349.	" " " " 10 " "	(ALCOSTA)	" " 3.25
" 350.	" " " " 12 " "	(ALCOTTIS)	" " 3.75

WOOD'S PERFECTION ICE CULTIVATOR.



Fitted with Wood's Eureka Cutter Bar and Patent Flanged Teeth.

Weight with one knife, 320 lbs.

No. 270.	Perfection Cultivator, one 40 in. Eureka Cutter Bar and Pole	(AINDA)	Our net price, each, $85 00
" 271.	" " two " " " " Bars and Pole,	(AINOTUS)	" " 110.00
" 274.	Extra 40 in. Eureka Cutter Bars, complete	(AINOVANT)	" " 25.00

For price of Patent Eureka Teeth and Bolts, see Nos. 258 and 259, page 265.

WOOD'S STREET ICE LEVELER.

Fitted with Wood's Eureka Cutter Bar.

Weight, 750 lbs

No. 278. Wood's Street Ice Levelers, with Pole (AINOVEN) Our net price, each, $125.00

For price of Patent Eureka Teeth and Bolts, see Nos. 258 and 259, page 265.

PATENT FLOOR SHAVER.

Weight, 6 lbs.; length, 4 ft. 10 in.; blade, 6 in. wide.

Floor shavers are very useful in leveling a floor of ice in house or vessel, being bent for convenience in operating.

The toothed floor shaver cuts rapidly and easily, and the patented rocking blade causes the "feed" to be accurate.

No. 470. Patent Floor Shavers, 5 teeth (CLIMBER) Our net price, each, $3.00

KNOB HANDLE SPLITTING FORK.

No. 440. Weight, 17½ lbs.; length, 4 ft. 9 in.; tines (outside), 14 in. long.
" 441. Weight, 15 lbs.; length, 4 ft. 6 in., tines (outside), 12 in. long.

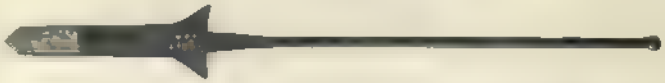
No. 440. Heavy Splitting Forks . . . . . (CABIN) . . . Our net price, each, $4.25
" 441. Light " " . . . . . (CATCHET) . . " " " " 4.00

RING HANDLE SPLITTING FORK.

No. 443. Weight, 18 lbs.; length, 4 ft. 10½ in.; tines (outside) 14 in. long.
" 444 Weight, 15½ lbs., length, 4 ft. 7⅛ in.; tines (outside) 12 in. long.

No. 443. Heavy Splitting Forks . . . . . (CABOT) . . Our net price, each, $4.50
" 444. Light " " . . . . . (CACKLER) . . " " " " 4.25

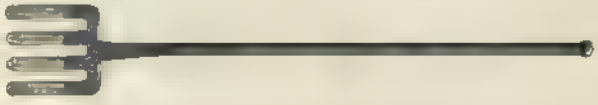
LYNN SPLITTING BAR.



Weight 18½ lbs.; length, 5 ft.; tine, 18 in. long.

No. 446. Lynn Splitting Bars, 1 tine, 3 in. wide . . . . . (CACTUS) . . Our net price, each, $4.25

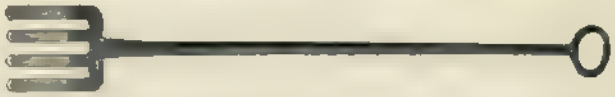
KNOB HANDLE FORK BAR.



Weight 15½ lbs.; length, 4 ft. 6 in.; fork, 8 in. wide.

No. 448. 4-Tined Fork Bars . . . . . (CADET) . . Our net price, each, $4.25

RING HANDLE FORK BAR.



Weight 16 lbs.; length, 4 ft. 9 in.; fork, 8 in. wide.

No. 449. 4-Tined Fork Bars . . . . . (CALEB) . . Our net price, each, $4 50

KNOB HANDLE FORK BAR.

Weight 12½ lbs.; length, 4 ft. 9 in.; fork, 6 in. wide.

No. 450. 3-Tined Fork Bars . . . . . (CALICO) . . Our net price, each, $4.00

RING HANDLE FORK BAR.

Weight, 13 lbs.; length, 4 ft. 10 in.; fork, 6 in. wide.

No. 451. 3-Tined Fork Bars . . . . . (CAMEL) . . Our net price, each, $4.25

BREAKING BAR.

Weight, 16½ lbs.; length, 4 ft. 8 in.; pad, 7½ x 4¾ in.; chisel blade, 2¾ in. wide.

No. 454. Breaking Bars . . . . . (CANDOR) . . . Our net price, each, $3.25

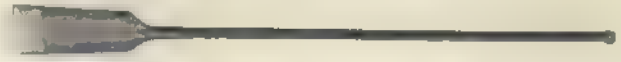
CALKING BAR.

Weight, 11 lbs.; length, 4 ft. 6 in.; blade, 15 x 4½ in.

This bar is used to calk the ends of the grooves on the field of ice, and on the floats before they are detached, with the chips made in grooving, in order to prevent the water from running in.

No. 456. Calking Bars . . . . . (CANOPY) . . Our net price, each, $2.50

BAR CHISEL.



Weight, 15½ lbs.; length, 4 ft. 7 in.; blade, 12 x 4½ in.

The bar chisel is made with a wide blade, beveled on one side, and is used mostly to cut around the cakes in getting ice out of the house.

No. 458 Bar or Packing Chisels, steel handles . . . (CANVAS) . . Our net price, each, $3.25

SUMMER BAR.

Weight, 17 lbs.; length, 4 ft. 5 in.; blade, 10 x 5½ in.

This bar is made wholly of steel, is heavier than the bar chisel, and is used in some localities for the double purpose of cutting around and striking up ice in the houses.

No. 460. Summer Bars, steel, fully polished . . . (CAPTAIN) . . Our net price, each, $5.00
" 461. " " light, " " . . . . (CAPTIVE) . . " " 5.00
" 463. " " steel, painted handle . . . . (CAPTOR) . . " " 4.50

STARTING CHISEL.

Weight, 14½ lbs.; length, 4 ft. 7 in.; blade, 10 x 2½ in.

The starting chisel, or striking under bar, is made for the purpose of starting up the blocks of ice in the house after they have been cut around with the bar chisel, and is curved to prevent too great stooping of the body.

No. 465. Starting Chisel, Eastern Pattern . . . . (CAPUT) . . Our net price, each, $3.25
" 466. " " Western " . . . . . (CAPUXET) . . " " 3.25

SOCKET CHISEL.

Weight, 10 lbs.; length, 4 ft. 10 in.; blade, 12 x 5½ in.

This is made with a blade similar to a bar chisel, but wider, and with a wooden handle, making it lighter in weight, on which account some prefer it in packing.

No. 468. Socket Chisels . . . . . (CLIMAX) . . Our net price, each, $3.25

RING HANDLE SAW TOOTH CHISEL.

Weight, 14 lbs.; length, 4 ft. 7½ in.; blade, 10½ x 3 in.

When grooves become frozen, or are of insufficient depth, this style chisel is very effective.

No. 480. Knob Handle Saw Tooth Chisel . . . . . (CLYDAL) . . . Our net price, each, $2.75
" 481. Ring " " " " . . . . . (CLYDE) . . . " " 3.00

KNOB HANDLE SPLITTING CHISEL.

Weight, 13½ lbs. Length, 4 ft. 6 in. Blade, 10½ x 3 in.

The splitting chisel is made with a narrow blade, and with a gradual bevel on both sides. It is used to split blocks or strips into cakes, either in the canal or on the platform, and also comes into use for various purposes, being a light and handy tool.

No. 474. Splitting Chisels, steeled blade . . . . . (CLOSET) . . Our net price, each, $2.25
" 475. " " solid tool steel blade . . . . . (CLOTURE) . . " " 2.50

RING HANDLE SPLITTING CHISEL.

Weight, 14 lbs. Length, 4 ft. 9 in. Blade, 10½ x 3 in.

This pattern of splitting chisel is usually preferred in splitting strips in the canal, and in cutting holes on the pond when the ice is thin and it is desired to let up the water to saturate a fall of snow, — in which case the ring forms an effectual safeguard against losing the chisel.

No. 476. Splitting Chisels, steeled blade . . . . . (CLUTCH) . . Our net price, each, $2.50
" 477. " " solid tool steel blade . . . . . (CLUTID) . . " " 2.75

RING NEEDLE BAR.

Weight, 11 lbs. Length, 5 ft.

The needle bar, which we make entirely of steel, is a very light tool for splitting off cakes in the canal, and where the plow-grooving is well done, it is as effective as the heavier chisels.

No. 484. Ring Needle Bars . . . . . (COACH) . . Our net price, each, $2.00

CANAL CHISELS.

No. 490, Steel Handle. Weight, 14 lbs. Blade 10½ x 3 in. Length, 6 ft.
" 492, Wood " " 7½ " " 10½ x 3 in. " 6 "

This chisel is six feet long and is intended for use in the canal when the operator stands on a raised platform.

No. 490. No. 1 Canal Chisel, steel handle . . . . . (COKE) . . Our net price, each, $2.75
" 492. " 2 " " wood " . . . . . (COFFEE) . . " " 2.50

THREE TINED NEEDLE BAR.

Weight, 13 lbs. Length, 5 ft.

The three tines give a broader bearing in the groove than a single tine and where the ice is not well plowed, or has become frozen up, it is more effective for separating strips or cakes.

No. 486. Three Tined Needle Bar . . . . . (COAST) . . Our net price, each, $4.50

TAPPING BAR.

Weight, 13 lbs. Length, 4 ft. 7½ in. Blade, 10½ x 1¾ in.

This tool is especially adapted for wetting down a field of ice after it has had a fall of snow upon it.

No. 482. Punching Bar . . . . . (CLYSTER) . . Our net price, each, $2.25

HOOK CHISEL.

Weight, 7½ lbs.; length, 6 ft.; blade, 10½ x 3 in.

The Hook Chisel is a canal chisel and ice hook combined, and has a wooden handle. It does not necessarily belong to a complement of tools, but it is sometimes needed to draw ice into position to split. We make it heavy enough for splitting well, the hook being secondary in importance.

No. 494. Hook Chisels . . . . . (COMET) . . Our net price, each, $3.00

SEPARATING CHISEL.

Weight, 14 lbs.; length, 4 ft. 6 in.; blade, 16 x 3½ in.

This chisel has a long, thin blade, and is designed for separating cakes of ice in the ice-house when packed on edge. The No. 496, with ring handle, is made for those who use the separating chisel on the ice-field in preference to the No. 2 splitting chisel.

No. 495. Separating Chisels . . . . . (COMPASS) . . Our net price, each, $2.75
" 496. " " ring handle . . . . (COMRADE) . " " 3.00

DOUBLE CAKE BAR.

Weight, 12 lbs.; length, 4 ft.; pad, 4½ in. wide.

This new bar is made with a steel pad with blunt edge, similar to that of the breaking bar. It is only useful in cases where ice is stored in large blocks which require to be grooved by the hand plow when being taken out of the houses. A pair of house bars — one in each hand — is then employed to split the blocks into cakes; and the pad is made to fit the groove made by the hand plow. It has no sharp edge.

No. 499. Double Cake Bar . . . . . (CRITIC) . . Our net price, each, $2.50

ICE ADZE.

Weight, with 33-in. handle, 6½ lbs.; width of blade, 6½ in.

This is preferred by some to the floor chisel for levelling ice floors in houses or in vessels. Having a toothed edge, it will cut rapidly and easily.

No. 471. Ice Adze, toothed, handled . . . . . (CLINKER) . . Our net price, each, $4.00

ICE SAWS.

Weight, with case, 4 ft., 13½ lbs.; 4½ ft., 15 lbs.; 5 ft., 16½ lbs.

Unless instructions are given to the contrary, saws with painted cases, having leather strap, will be shipped on orders.

The saw is a very necessary article in cutting ice, as it must be used in opening the channel, and also in sawing the sheets or "floats" out of the field. Five feet is the best length for fast work where the depth of water will permit its use.

No. 420.	Ice Saws, 4 ft., best quality, with case	. . .	(BRIDAL)	. .	Our net price, each,	$5.00
" 421.	" 4½ " " "	. . .	(BRIDE)	. .	" "	5.25
" 422.	" 5 " " "	. . .	(BRIDLER)	. .	" "	5 50
" 425.	" 4 " " without case	. .	(BRIGADE)	. .	" "	4 50
" 426.	" 4½ " " "	. .	(BRIGADIER)	.	" "	4.75
" 427.	" 5 " " "	. .	(BRIGAND)	.	" "	5.00

POLE GRAPPLE.

Weight, without handle, 13 lbs.; drop, 8 in. Other sizes made to order.

The grapple, or drag, is used to draw cakes of ice up an inclined plane by horse or steam power, in the absence of elevator machinery.

No. 433.	Pole Grapple with handle	(BUCK) . .	Our net price, each,	$4.25
" 434.	" without handle	(BUCKET) . .	" "	3.75
" 435.	Handle and Clevis for No. 433	(BUCKLER) .	" "	.75
" 438.	Towing Hooks	(BUGLER) . .	" "	3.00

JACK GRAPPLE.

Weight, 19 lbs.; drop 8 in.

This kind of grapple is employed for the same purposes as No. 433. Being made with a stationary handle, it is considered better by some than the other pattern. It is easily changed from a right to a left-hand grapple.

No. 436.	Jack Grapples	(BUFFER) . .	Our net price, each,	$4.25

PLOW ROPE.

Length, 8 ft.

These are made of the best manila rope, 1 in. diameter, with a thimble spliced in one end for the whiffle-tree-hook, and a pair of sister-hooks in the other end by which to fasten to the plow.

No. 412.	Plow Ropes	(AWAKE) . .	Our net price, each,	$1.75

ELEVATOR FORK.

Length, 6 ft. 7 in.; tines, 6 in. long.

This article is deemed better than an ice hook for feeding ice to the elevator, as two pushing points give better control of the cake than one. The hook affords a means of holding back the ice, if necessary. Handle, 6 feet long. Longer ones put on to order.

No. 502. Elevator Forks . . . . . (GREEK) Our net price, each, $1.50

SIEVE SHOVEL.

Weight, 7 lbs.; size of shovel, 17 x 14 in.

This substantially-made scoop is very useful in clearing the canal of chips and pieces of ice. Some prefer it to the scoop net.

No. 506. Sieve Shovels, 40-in. handle . . . . . (GROVE) . . Our net price, each, $1.75

SCOOP NET.

Weight, 7 lbs.; handle, 5 ft.; hoop, 15 in. diam.

These are made as light as possible by the use of welded chain. The scoop net is used to remove from the water small pieces of ice which obstruct the channel more or less, and it has the advantage of not freezing so as to impair its straining qualities.

No. 505. Scoop Nets . . . . . (GRIST) . . Our net price, each, $3.00

ICE AUGER.

Weight, 6 lbs.; length, 3 ft. 6 in.

This auger is made with an easy-working head and a long shank, enabling the person to retain a standing position while using. It is used principally in making holes through which to measure the ice, as well as in which to insert pins for stretching lines, towing floats, and other purposes.

No. 510. Ice Augers, 1¼ in. . . . . (GUMBO) . . Our net price, each, $3.50

MEASURING IRON.

A companion article for the ice auger.

No. 512. Measuring Irons, polished, 32 inch . . . . . (GURNET) . . Our net price, each, $0.50

ICE TOOL GRAPPLE.

Weight, 5 lbs.; length of springs, 2 ft.

This grapple is very effective in recovering tools which have been dropped into the water. The springs are stiff and will grasp a chisel firmly.

No. 515. Ice Tool Grapples, without handle . . . . . (GUSSET) . . Our net price, each, $3.00

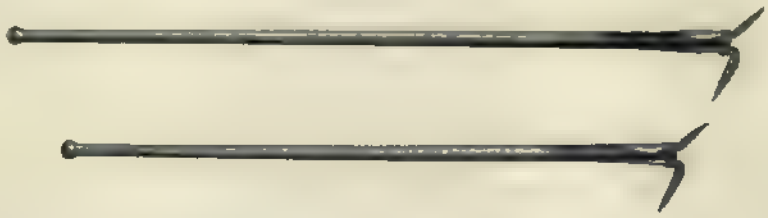
LINE MARKER.

Weight, 2 lbs. Length, 4 ft. 8 in.

This tool is a simple contrivance for the purpose of making a line by means of a straight edge in which to run the marker teeth, thus making the first groove in marking out the field of ice.

No. 500. Line Markers . . . . . (GOURD) . . Our net price, each, $0.90

ICE HOOKS.



Weight of 4½ ft. Ice Hooks, per doz., 37 lbs.

The Ice Hook, though so simple in its appearance, is absolutely necessary in the handling of ice, and is to every ice-dealer a very important part of a "set of tools." 4½ feet hooks are most commonly employed for use on the runs, in the houses, or in loading wagons.

No. 520.	Ice Hooks, 3 ft.,	Boston Pattern	(HACK)	Our net price, per doz.,	$9.00
"	3½ "	"	(HAIL)	" "	9.00
"	4 "	"	(HALYARD)	" "	9.25
"	4½ "	"	(HAMLET)	" "	9.50
"	5 "	"	(HAMPER)	" "	10.00
"	6 "	"	(HANGER)	" "	10.50
"	3 "	New York Pattern	(HANK)	" "	9.00
"	3½ "	"	(HARBOR)	" "	9.00
"	4 "	"	(HARE)	" "	9.25
"	4½ "	"	(HARP)	" "	9.50
"	5 "	"	(HARVARD)	" "	10.00
"	6 "	"	(HARVEST)	" "	10.50
"	7 "	"	(HAWK)	" "	11.00
"	8 "	"	(HEBRON)	" "	12.00
"	10 "	"	(HECTOR)	" "	13.00
"	12 "	"	(HEMLOCK)	" "	14.00
"	14 "	"	(HICKORY)	" "	15.50
"	16 "	"	(HISTORY)	" "	17.00
"	18 "	"	(HOBSON)	" "	18.50

CAR ICE HOOK.

Made the same as regular ice hooks, excepting that the shover iron extends 18 inches down the handle.

No. 522.	Car Ice Hooks, 4 ft.	(HOME)	Our net price, per doz.,	$12.00
" 523.	" 4½ "	(HONEY)	" "	12.25

CANT ICE HOOK.

The use of the Cant Ice Hook is to "edge up" ice when packing into houses or barges.

No. 525.	Cant Ice Hooks, 4 ft. handles	(HOOKER)	Our net price, per doz.,	$16.00
" 526.	" 4½ " "	(HOOSAC)	" "	16.25
" 527.	" unattached	(HOOPER	" "	6.00
" 530.	Pullers, for Ice Hooks, Boston pattern	(HOTEL)	" "	4.50
" 531.	" " New York pattern	(HOUSE)	" "	4.50
" 532.	Shovers, "	(HOVER)	" "	2.75
" 534.	Rings, "	(HUNGER)	" "	.35
" 536.	Rivets, " countersunk head (for both irons)	(HURTLE)	" "	.03
" 537.	Rivets, " flat head (for tail of puller)	(HUSKY)	" "	.03

STEEL HAND ICE TONGS.

Boston Tongs.

13 in.

14½ in.

16½ in.

24 in.

No. 540.	Boston Tongs, family size, span 13 in., swell handles, regular (painted red).	(MACHINE)	Our net price, per doz.,	$14 00
	" " small " " 14½ " " " " "	(MADRID)	" "	15.00
	" " medium " " 16½ " " " " "	(MAGPIE)	" "	16.00
	" " loading " " 24 " " " " "	(MAMMOTH)	" "	18.00
	" " extra " " 26 " " " " "	(MAMONO)	" "	19.00
No. 541.	Standard Hollow Handle Tongs, (painted blue) 13 in.	(MANACLE)	" "	16.00
	" " " " " 15 "	(MANAGER)	" "	17 00
	" " " " " 16½ "	(MANAKIN)	" "	18.00

Hollow Handle.

Wood Handle.

New York.

Philadelphia.

Chain.

No. 542.	Extra Hollow Handle Tongs, 13 in. (painted black) . .	(MANDREL) .	Our net price, per doz.,	$19.00
	" " " " 15 " " . . .	(MANHOOD) .	" "	20.00
	" " " " 16½ " " . . .	(MARBLE) .	" "	21 00
No. 543.	Wood Handle Tongs 13 "	(MASTIFF) .	" "	24 00
	" " " 14½ "	(MECHANIC) .	" "	24.00
	" " " 16½ "	(MEDAL) .	" "	24 00
No. 545.	New York Tongs, family size, 14½ "	(MEDIA) .	" "	14 00
	" " " small " 17 "	(MEDLAR) .	" "	15 00
	" " " medium " 20 "	(MEEKER) .	" "	16.00
	" " " large " 24 "	(MEGRIM) .	" "	18 00
No. 547	Philadelphia Tongs, small size 14 in. . . .	(MELON) .	" "	17 00
	" " medium size, 17 in.	(MEMORY) .	" "	20.00
	" " large " 23 "	(MENTAL) .	" "	23 00
No. 550.	Chain Tongs, 10 in. span	(MITTEN) .	" "	12.00
	" " 12 "	(MODEL) .	" "	12 50
	" " 15 "	(MODERN) .	" "	13 00
No. 551.	Cincinnati Link Tongs, 10 in.	(MODEST) .	" "	12.00
	" " " 12 "	(MOHAIR) .	" "	12 50
	" " " 15 "	(MOISTURE) .	" "	13.00

Buffalo Tongs.

Eastern Edging-up Tongs.

Utah Edging-up Tongs.

Drag Tongs.

No. 555.	Buffalo Tongs, Black, 12 in. span	(MOLAND) .	Our net price, per doz.,	$15.00
" 556.	" " polished, 12 "	(MOLEST) .	" "	20.00
If wanted with Boston swell handles add		(MOLOCH) .	" "	2.00
No. 561	Eastern Edging-up Tongs, solid handles, 25 in. span .	(MOMENT)	" "	18 00
" 562.	Utah " " " " 19 " . . .	(MOMUS) .	" "	18.00
" 563.	" " " hollow " 19 " . . .	(MONAD) .	" "	20.00

The Eastern pattern spans the entire cake. The Utah pattern catches the cake on the side and top.

No. 565.	Drag, or Stowing Tongs, solid handles . . .	(MOODY) .	Our net price, per doz.,	$21.00
" 566.	" " " " hollow "	(MORTAL) .	" "	23.00

These are used in some localities for stowing ice in houses. They are made with long handles to enable the user to maintain a convenient position.

HOISTING TONGS.

Single Point Lowering Tongs.

Double Point Lowering Tongs.

Single Point Market Tongs.

Double Point Market Tongs.

No. 570.	Single Point Lowering Tongs, 24-in. span	(MOTIVE)	Our net price, each,	$2.00
" 571.	" " " " 17 " "	(MOTOR)	" "	2.00
" 574.	" " " " 24 " "	(MUFFIN)	" "	2.75
" 575.	" " " " 17 " "	(MUFFORT)	" "	2.75

Designed for work where only a small space overhead exists. Being of steel, they are strong enough for ordinary hoisting, and are light to handle.

Use the smallest span you can for your work, as the grip is stronger the more open they are.

No. 578.	Single Point Market Tongs, steel	(MULE)	Our net price, each,	$3.00
" 579.	" " " "	(MUMMY)	" "	3.75

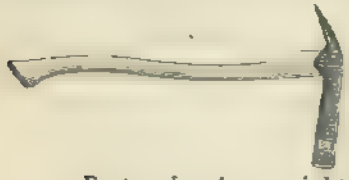
Where head room will admit, market tongs are preferred by some to the lowering pattern for filling ice-boxes and market refrigerators.

Adjustable Claw Hoisting Tongs,

Solid Claw Hoisting Tongs.

No. 584.	Adjustable Claw Hoisting Tongs, 24-in.	(MUSIC)	Our net price, each,	$6.00
" 585.	New York Solid Claw Hoisting Tongs, 24-in.	(MUSKET)	" "	5.00
" 586.	Boston " " " 24 "	(MUSTARD)	" "	4.50

BOSTON ICE AXE.



TAPPING AXE.

Boston Ice Axe, weight, 4 lbs.; handle, 30 in., blade, 1¼ in. wide, square edge.

No. 604.	Boston Ice Axes, 1¾ in. blade	(NEEDED)	Our net price, per doz.,	$20.00

Tapping Axe, weight, 5½ lbs.; blade, 3 in. wide.

No. 600.	Tapping Axe	(NAHANT)	Our net price, per doz.,	$24.00
" 602.	House " 6½-in. blade	(NATION)	" "	26.00

ICE AXE HANDLE.

No. 900.	Ice Axe Handles	(NILE)	Our net price, per doz.,	$3.00

ICE AXES.

Chicago Ice Axe.

Weight, 4 lbs.; handle, 30 in.

New York Ice Axe.

Weight, 4½ lbs.; handle, 30 in.

Philadelphia Ice Axe.

Weight, 4¾ lbs.; handle, 28 in.

No. 605.	Chicago Ice Axes,	8 x 2½ in. blade .	(NEST)	Our net price, per doz.,	$20.00
" 607.	New York Ice Axes, medium,	7½ x 3 " " .	(NEWPORT)	" "	20.00
" 608.	" " " heavy,	7½ x 3½ " " .	(NEWTOWNE)	" "	21.00
" 610.	Philadelphia Ice Axes .	2½ " " .	(NIPPERS) .	" "	20.00
" 611.	" Hook Ice Axes,	2½ " " .	(NITRIA) . .	" "	20.00

Heavy Southern Axe.

Weight, 3¼ lbs.; handle, 22 in.

Light Southern Axe.

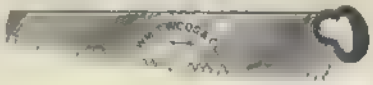
Weight, 2½ lbs.; handle, 18 in.

Light Southern Hatchet.

Weight, 2 lbs.; handle, 16 in.

No. 615.	Heavy Southern Axes, round edge		(NORFOLK)	Our net price, per doz.,	$18.00
" 616.	Light " " " " . . .		(NORMAN) .	" "	17.00
" 620.	Medium " Hatchets, square edge		(NORWAY)	" "	16.80
" 621.	" " " round " . . .		(NOSTRIL) .	" "	16.00
" 622.	Washington " " " . . .		(NOSTRODE) .	" "	16.00
" 625.	Light Southern " square " . . .		(NOSTRUM) .	" "	15.00

HAND SAWS.



No. 640.	Wood Handle Hand Saws, 30 in.		(TANNEL) .	Our net price, each,	$1.25
" 641.	Guard Iron Handle Hand Saws, 30 in.		(PANSEY) . . .	" "	1.50
" 642.	Oval " " " " 30 "		(PANTRY) . . .	" "	1.25

SPLITTING AWLS.

No. 630.	Splitting Awls, needle point, round handles . .		(NURSERY) .	Our net price, per doz.,	$2.00
" 631.	" " " " " brass "		(NURSLING) . .	" "	10.00
" 632.	" " " " " chisel "		(NUSTLAR) . .	" "	2.00

Chipper.

Blade, 6 in. x 3 in.

Ice Hack or Cleaver.

Weight, 3 lbs.; length, 18 in.

No. 636.	Ice Chippers, finest quality . . .		(NUTMEG) . .	Our net price, per doz.,	$8.00
" 648.	Ice Cleaver		(PAPPUS) . .	" each,	2.50

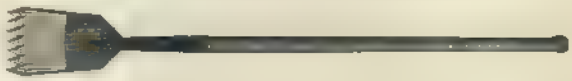
ICE SHAVERS.

No. 650.	4 Point Ice Shavers, long handle, 7½ x 4½ in. . . .		(PARTNER) . .	Our net price, each,	$2.25
" 651.	4 " " " " " 6½ x 4½ "		(PARTRIDGE) . .	" "	2.25
" 652.	4 " " " D " 7½ x 4½ "		(PASSION) . .	" "	2.25
" 653.	4 " " " " " 6½ x 4½ "		(PASTIME) . . .	" "	2.25

ICE SHAVERS.

No. 654.	5 Point Ice Shaver,	Long	Handle,	8½ x 6	in.	(PASTOR)	Our net price, each,	$2.50
" 655.	5 " " "	D	"	8½ x 6	"	(PASTRY)	" "	2.50
" 658.	7 " " "	Long	"	9 x 7⅛	"	(PATCH)	" "	2.75
" 659.	7 " " "	D	"	9 x 7⅛	"	(PATER)	" "	2.75

FINE TOOTH SLUSHER.



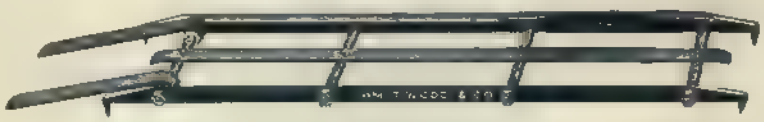
Weight, 5 lbs. Length, 3 ft., 4 in. Blade, 7 x 5 inches.

No. 662. Fine Tooth Slusher, knob handle . . . . . (PATHOS) . . Our net price, each, $2.50

ICE BREAKERS.

	Long handle.	Weight, 5½ lbs.	Length, 4 ft. 1 in.	Tines, 7¾;	width, 3 in.
	D "	" 5½ "	" 3 " 7 "	" 7¾;	" 3 "
No. 665.	Long Handle Ice Breakers	(PAUL) . .	Our net price, each,	$3.50
" 667.	D " " "	(PAWNEE) .	" "	3.50

HOUSE RUN.

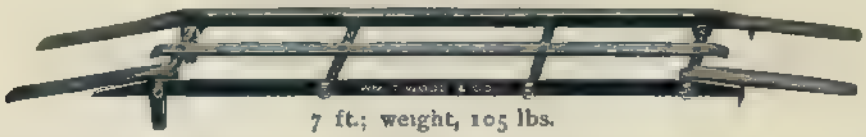


6 ft.; weight, 75 lbs.

The House run is useful in the houses and for loading wagons, and is made with a pair of flippers on one end, to cause the ice to slide on easily.

No. 720. House Runs, length 6 ft. . . . . (TABLET) . Our net price, each, $9.00

CAR RUN.

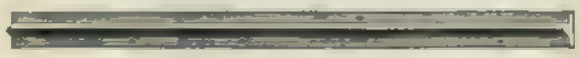


7 ft.; weight, 105 lbs.

The Car Run is used for loading cars, and has flippers on the delivering as well as on the receiving end. Two arms on the bottom prevent the run from being jarred ahead when receiving the ice.

No. 722. Car Runs, length, 7 ft. . . . . (TACKLE) . Our net price, each, $12.50

ICE RUN IRON.



V Run Iron, weight, per ft., 1⅓ lbs. Half Oval Run Iron, weight, per ft., 1 lb.

No. 750.	V Ice Run Iron, drilled	10 ft.	. . . . .	(TRACT) . .	Our net price, per ft.,	$0.06
	" " " " "	12 "	. . . . .	(TRACTE) .	" "	.06
	" " " " "	14 "	. . . . .	(TRAIN) . .	" "	.06
	" " " " "	15 "	. . . . .	(TRAMP) . .	" "	.06
	" " " " "	16 "	. . . . .	(TRAY) . .	" "	.06
	Extra charge net for dressing ends for skids	(TREAT) . .	" bar,	.05
No. 754.	Half Oval Run Iron, 1 x ⅛,	12 ft.	. . . . .	(TRICE) . .	" ft.,	.06
	" " " " 1 x ⅛,	14 "	. . . . .	(TRILL) . .	" "	.06
	Extra charge net for dressing ends for skids	(TREAT) . .	" bar,	.05

4-SLAT, T-IRON SKID.

Usual length, 12 ft.; weight, 110 lbs.

3-slat T-iron Skids.

No. 725.	8 ft.	(TEASEL)	Our net price, each,	$7.50
	10 "	(TEMPEST)	" "	8.00
	12 "	(TEMPLARS)	" "	8.50
	14 "	(TENSE)	" "	9.00
	16 "	(TENTER)	" "	9.50

4-slat T-iron Skids.

No. 726.	8 ft.	(TATIC)	Our net price, each,	$8.50
	10 "	(TAUTOR)	" "	9.00
	12 "	(TALON)	" "	9.75
	14 "	(TAMBOUR)	" "	10.50
	16 "	(TARGET)	" "	11.25

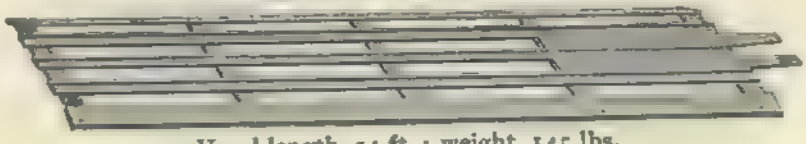
WOODEN RUN WITH SIDES.

Usual length, 12 ft.; weight, 130 lbs.

Wooden runs are made of spruce, fitted out with hooks and eyes. Width, 28 inches inside, clear.

No. 730.	Wooden Runs, with sides, 10 ft., 4 battens	(TILLER)	Our net price, each,	$10.25
	" " 12 " 5 "	(TIMBREL)	" "	12.50
	" " 14 " 5 "	(TINDER)	" "	14.00
	" " 16 " 6 "	(TINNER)	" "	16.00
"	734. Hooks and Eyes for No. 730 runs	(TINSEL)	"	per pair, .50

WOODEN FLAT SKID.



Usual length, 14 ft.; weight, 145 lbs.

Made of oak strips one inch thick, well bolted together. The two outside run-strips are ironed with patent V-iron, and the centre one with 1 x ⅝ inch half-oval iron.

No. 740.	Wooden Flat Skids, 12 ft. 4 battens	(TOKAY)	Our net price, each,	$6.50
	" " 14 " 5 "	(TONIC)	" "	7.75
	" " 16 " 5 "	(TONSIL)	" "	8.75

GROOVING HARNESS.

These harnesses are so designed as to enable the horse to draw a plow or marker at the greatest possible advantage, and are of the pattern used by many large harvesters.

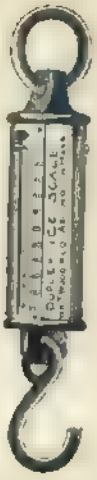
No. 901.	Grooving Harness, with Whiffletree	(SLOPANT)	Our net price, each,	$12.50
"	902. Hames, No. 10 size strapped and painted	(SLOPIST)	" per pair,	2.50

POCKET ICE APRONS.

No. 670.	Pocket Ice Aprons, with harness complete	(PAXILLA)	Our net price, each,	$2.50
"	674. Plain Rubber Aprons, medium weight	(PAXO)	" "	1.75

ICE SCALES.

"Ironclad."
Weight, 4½ lbs.



"Duplex."
Weight, 5 lbs.

"Straight."
Weight, 4 lbs.

Wood's "Tubular."
Weight, 6 lbs.

				Our net price, each
No. 700	Ironclad,	200 x 5 lbs.,	(SABLE)	$2 50
	"	300 x 5 "	(SAFETY)	3.00
	"	400 x 5 "	(SALAD)	3 50
No. 702	Duplex,	200 x 5 "	(SALAMBA)	3.00
	"	300 x 5 "	(SALAMIS)	3.25
	"	400 x 5 "	(SALANIO)	3.50
No. 704	Straight,	200 x 2 "	(SALANKE)	3.50
	"	80 x 1 "	(SALARY)	1.25
		100 x 1 "	(SALEM)	2.00

				Our net price, each
No. 704.	Straight,	125 x 1 lbs.	(SALVAGE)	$2 50
	"	150 x 1 "	(SAMBO)	3 00
	"	200 x 2 "	(SANDAL)	3.50
	"	250 x 2 "	(SANFORD)	4.00
No. 706.	Wood's Tubular, " "	200 x 5 "	(SCOTCH)	6.00
		300 x 5 "	(SCUTTLE)	6.50
No. 708	Steel King, " "	200 x 2 "	(SEEDER)	3.25
	" "	300 x 5 "	(SEGMENT)	3.50
		400 x 5 "	(SELVAGE)	4.00

HOISTING GINS.

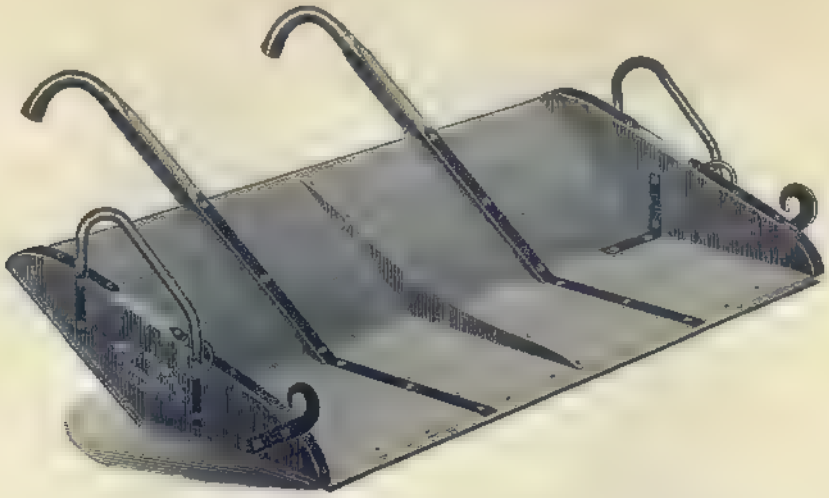
Upper Gin.

Anti-Friction Sheave Wheel.

Lower Gin.

					Our net price, each,
No. 710	Upper self-lubricating gins,	8 in		(SEXTON)	$4.50
	" " "	10 "		(SHADOW)	5.25
	" " "	12 "		(SHANK)	6.75
	" " "	14 "		(SHAWNEE)	8.00
	" " "	16 "		(SHOAL)	9.50
No. 711.	Lower " "	8 "		(SIGNET)	5.25
	" " "	10 "		(SILVER)	6.00
	" " "	12 "		(SIMOON)	7.50
	" " "	14 "		(SLAB)	8.75
	" " "	16 "		(SLATE)	10.25
No. 716	Anti-Friction Sheave Wheels, 12 in. dia., hole ¾ dia.			(SLATTERN)	1 50

BOSTON SCRAPER.

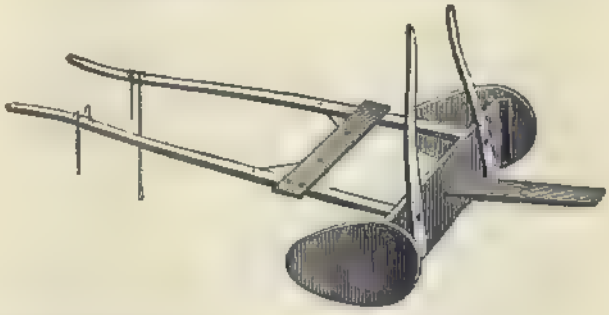


Weight of 6-ft. scraper, 160 lbs.; weight of 8-ft. scraper, 185 lbs.

This style is the most effective and popular scraper in use. Many large ice companies use no other kind for all depths of snow. We make them entirely of oak, and iron them in a substantial manner.

No. 284.	Boston Scraper (no shafts) 6 ft. long	(AJABET)	Our net price, each,	$14.00
" 285.	" " " " 8 " "	(AJABING)	" "	15.00
" 288.	Chains for 6-ft. Boston Scrapers	(AJABOL)	" "	2.00
" 289.	" " 8 " " "	(AJABUNT)	" "	2.25

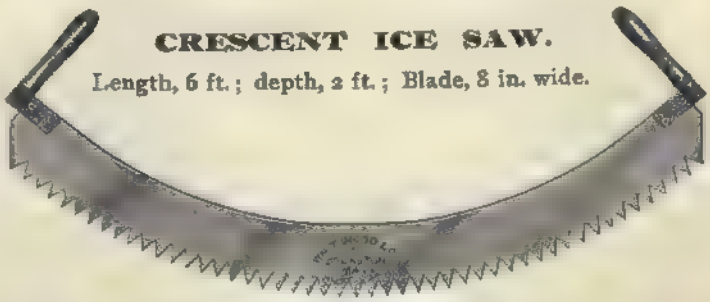
CLEARING-OFF SCRAPER.



No 292.	Clearing-off Scrapers, 6 ft. long (with shafts)	(AJARRO)	Our net price, each,	$17.00
" 293.	" " 7 " " " "	(AJASTA)	" "	17 50
" 294.	" " 8 " " " "	(AJASTUS)	" "	18.00
" 298.	Shafts for Clearing-off Scrapers	(AJAX)	" per pair,	6.50

CRESCENT ICE SAW.

Length, 6 ft.; depth, 2 ft.; Blade, 8 in. wide.



This tool is used for sawing out cakes of ice which have become frozen solidly together in the house. Sometimes conditions exist under which no other implement can take its place.

No. 430.	Crescent Ice Saws	(BROADUS)	Our net price, each,	$18.00

SUGGESTIONS ON SELECTING A SET OF ICE-CUTTING TOOLS.

We give below four specimen lists of tools, with brief headings, which, as a supplement to our catalogue descriptions, we hope may serve as a basis upon which new firms can form an estimate of their needs for their individual situations.

Set No. 1.

Suitable for harvesting 100 to 500 tons of ice, using three to six men and one horse, alternating plowing and raising ice with the horse, and hoisting into one room with one grapple.

If plowing and raising are to be done at once, two horses and more men will be required.

1 No. 315 Ice King Plow.
(Or No. 316 if ice is 14 in. thick.)
1 " 412 Plow Rope.
1 " 422 5-ft Ice Saw.
1 " 433 Grapple and Handle.
(Or No. 436 Jack Grapple.)
1 " 444 Splitting Fork.
(Or No. 449 or No. 451 Fork Bar if grooves are shallow.)
1 No. 456 Calking Bar.
1 " 458 Bar Chisel.
1 " 470 Floor Shaver.
1 " 476 Ring Splitting Chisel.
1 " 500 Line Marker.
1 " 506 Sieve Shovel.
(Or No. 505 Scoop Net is better.)
¼ doz. No. 520 4½-ft. Ice Hooks.
⅛ " " 520 6-ft. Ice Hooks.
⅛ " " 520 12-ft. Ice Hooks.
⅛ " " 540 24 in Boston Tongs.
(Or ⅓ doz. No. 565 Drag Tongs.)
1 No. 710 12-in. Upper Gin.
1 " 711 12-in. Lower Gin.

Add Nos. 270, 284, 298, 482, 490, 510, 512, 561, 562, 725, 726, 730, 740 and 750 as needed.

Set No. 2.

Suitable for harvesting 1,000 to 2,000 tons of ice, using, say ten men and two horses, hoisting into two rooms with one grapple.

1 No. 388 8 in. Swing Guide Plow, for ice 12 in thick
(Or No. 385 or 386 if ice is thinner.)
(Or No. 389 for 14-in ice, or No. 391 if ice goes to 18 or 20 in.)
1 No. 412 Plow Rope.
2 " 422 5 ft. Saws.
2 " 433 Grapples and Handles.
(Or 2 No. 436 Jack Grapples.)
1 No. 441 Splitting Fork.
2 " 456 Calking Bars.
2 " 458 Bar Chisels.
2 " 470 Floor Chisels.
1 " 476 Ring Splitting Chisel.
1 " 484 Needle Bar.
1 " 486 3 tined Needle Bar.
1 " 500 Line Marker.
1 No 506 Sieve Shovel
(Or No 505 Scoop Net is better.)
½ doz. No. 520 4½-ft. Ice Hooks.
⅛ " " 520 6-ft. Ice Hooks.
⅛ " " 520 10 to 16 ft. Ice Hooks.
⅛ " " 540 24-in. Boston Tongs.
(Or ⅓ doz. No. 565 Drag Tongs.)
2 No. 710 12-in. Upper Gins.
2 " 711 12-in. Lower "

Substitute No. 343 or No. 344 Perfection Plow if preferred; and add Nos. 270, 284, 298, 482, 490, 510, 512, 561, 562 725, 726, 730, 740 and 750 as needed.

Set No. 3.

Suitable for harvesting 2,000 to 5,000 tons of ice at moderate rate, using twenty-five men or more, two or three horses and incline elevator, filling four rooms at once.

If less rooms are filled at once, tools can be slightly reduced in number. If more, they must be increased.

Use Wood's Elevating Machinery.
1 No. 252 Wood's Elevator Planer
(Or No. 253, 254, 255 or 256 if much surface is to be removed.)
1 No. 270 Perfection Ice Cultivator.
2 " 284-289 Scrapers.
1 " 355 Marker, 2 -in Sw Gd.
(Or No. 356 or 359 Marker if two dimensions are to be cut.)
(Or No. 355 Marker with No. 364 Extra Gd. if 44 in. cakes are to be housed.)
1 No. 374 8-in. 8-tooth Plow.
1 " 408 or 409 Hand Plow.
2 " 412 Plow Ropes.
4 " 422 5-ft. Saws.
2 " 441 Splitting Forks.
2 " 444 Splitting Forks.
4 " 456 Calking Bars.
4 " 458 Bar Chisels.
4 " 470 Floor Shavers.
2 " 476 Ring Splitting Chisels.
2 " 484 Needle Bars.
2 " 486 3-tined Needle Bars.
2 No 502 Elevator Forks.
1 " 505 Scoop Net.
2 " 506 Sieve Shovels.
1 " 510 Ice Auger.
1 " 512 Measure.
3 doz. No. 520 4½-ft. Ice Hooks.
⅛ " " 520 6-ft. Ice "
⅛ " " 520 8-ft. " "
⅛ " " 520 10 to 16-ft. Ice Hooks.
(No 540 Boston Tongs, or No. 565 Drag Tongues if needed.)

Add 1 No. 355 Marker and 2 No. 371 6-in. Plows, and increase other tools if a housing rate of 1,000 tons per day is to be made.
Add 1 No. 377 10-in. Plow if ice is 15 in thick; and 1 No 379 12-in. Plow if ice is 18 or 20 in. thick.
Substitute No. 330-340 Perfection Markers and Plows if preferred; and add Nos. 284, 298, 482, 490, 510, 512, 561, 562, 725, 726, 730, 740 and 750 as needed.

Set No. 4.

Suitable for harvesting 20,000 tons from one ice-field at ordinary rate, using seventy five men, or more, six or eight horses (not counting horses needed for scraping snow), and incline elevator, filling eight rooms at once. For filling a larger number of rooms at once, add the necessary tools to handle them.

Use Wood's Elevating Machinery
1 No. 252-256 Wood's Elevator Planer.
1 " 270 Perfection Cultivator.
5 " 284-289 Boston Scrapers.
3 " 355 Markers, 22-in. Gd.; necessary No. 362-366 extra guides to mark the second dimension.
(If 44-in. cakes are to be cut, *Extension* Guides 22 x 44 in. cannot be used.)
2 No. 371 6-in. Plows.
2 " 374 8-in. "
1 No. 377 10-in. Plow.
1 " 379 12-in. Plow, if thick ice.
1 " 408 or 409 Hand Plow.
8 " 412 Plow Ropes
6 " 422 5-ft. Saws.
3 " 441 Splitting Forks.
2 " 444 Splitting Forks.
1 " 446 Lynn Bar.
8 " 456 Calking Bars.
8 " 458 Bar Chisels.
8 " 470 Floor Chisels.
(These will not be needed if all cakes are planed to one even thickness on elevator.)
4 No. 476 or 477 Splitting Chisels.
2 " 484 Needle Bars.
4 " 486 3-tined Needle Bars.
2 " 502 Elevator Forks.
2 " 505 Scoop Nets.
2 " 506 Sieve Shovels.
1 " 510 Ice Auger.
1 " 511 Measure.
5 doz. No. 520 4½-ft. Ice Hooks.
⅛ " " 520 6-ft. " "
½ " " 520 8-ft. " "
1 " " 520 10 to 16-ft. Ice Hooks.
(One pair of No. 565 Drag Tongs in each room if custom demands.)

Substitute No. 330-340 Perfection Markers and Plows if preferred, and add Nos. 284, 298, 482, 490, 561, 562, 725, 726, 730, and 740 as needed.

For housing 50,000 tons and high rate of speed, multiply above list in most items by two or more.

Our pamphlet on Ice Harvesting will be cheerfully mailed to any applicant.

Damascus Cutlery.

The above Illustration shows how Damascus Pen, Cattle and Mechanics Knives are put up in Chamois Bags, assuring perfect safety against Rust or Tarnishing.

The Damascus Line is strictly Hand Forged, and is pronounced the Strongest and Most Complete Line of Patterns adapted to our Home and Foreign Trade.

We Warrant our Pocket Knives Free from Flaws in Blades or Springs. Blades breaking from other cause than Flaws, or that have been Reground by Dealer or Consumer, will not be subject to Return or Exchange.

Knives that have been Reground by the Consumer are sometimes Ground too Thin and are Liable to Break, which is rather an Evidence of Good Steel and Temper and should not be condemned on this account.

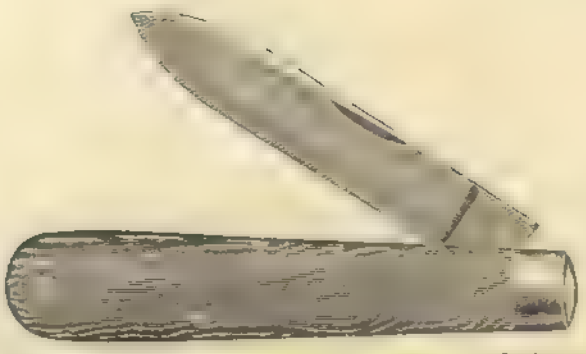
Savage Cutlery.

The "Savage" Line is our Latest Addition of American Hand Forged Cattle, Jack and Pen Knives Newest Patterns and Ready Sellers. Absolutely Right for Price and Quality.

The Savage Line is covered by Guarantee same as the Damascus.

Pocket Knives.

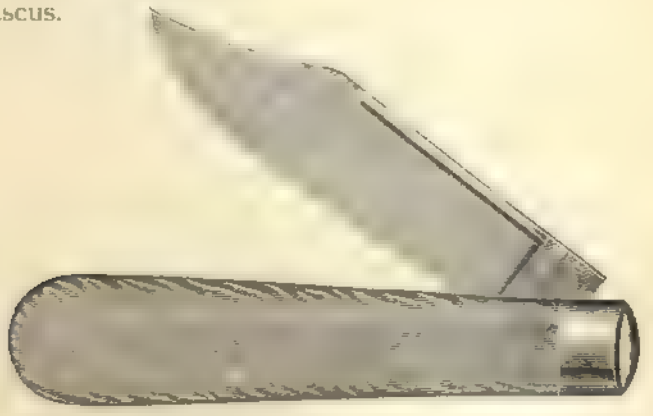
Damascus.



Per Dozen

No. 1552—One Blade, Ox-hoof Handle, Iron Lined, ... $4.00

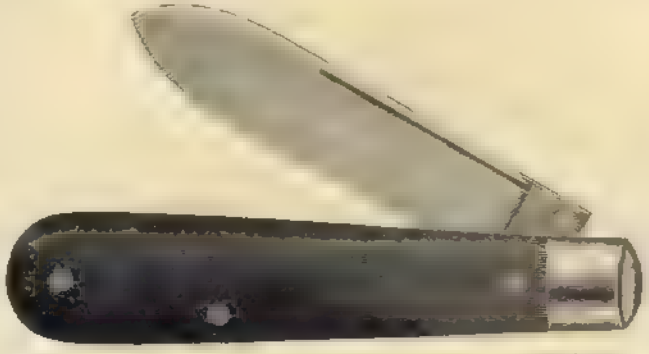
No. 1553—One Blade, Ebony Handle Iron Lined, ... 4.00



Per Dozen

No. 1550R—One Blade, Rosewood Handle, Iron Lined, ... $4.00

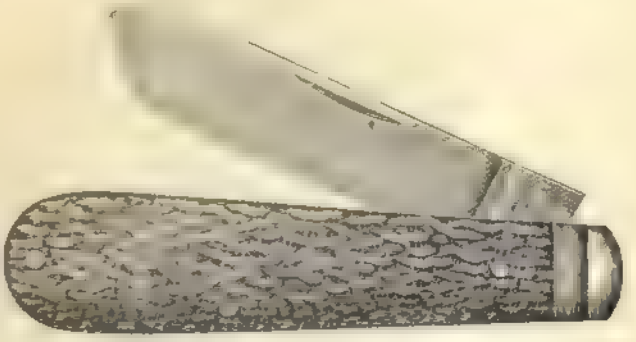
No. 1550E—One Blade, Ebony Handle Iron Lined, ... 4.00



Per Dozen

No. 1551E—One Blade, Ebony Handle, Iron Lined, ... $4.00

No. 1551R—One Blade Rosewood Handle, Iron Lined, . . . 4.00

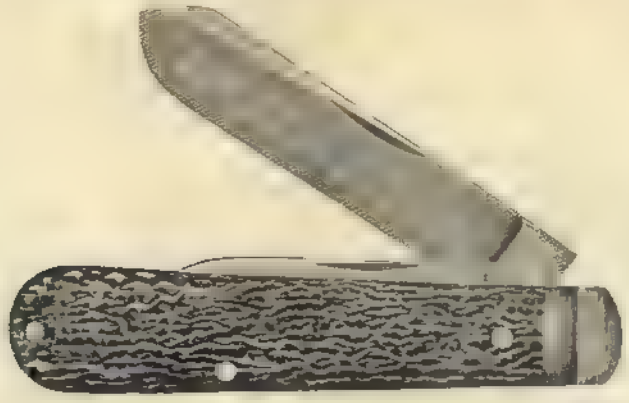


Per Dozen

No. 1673SP—One Blade Spaying Iron Handle, ... $4.00

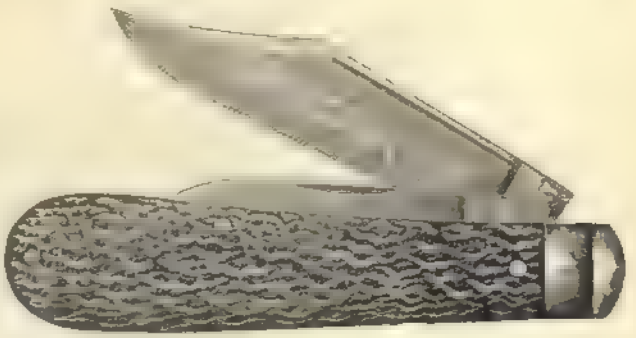
No. 1673S—One Blade Spear Point Iron Handle, ... 4.00

No. 1673C—One Blade, Clip Point, Iron Handle, ... 4.00



Per Dozen

No. 1671SP—Two Blades, Iron Handle $6.00



Per Dozen

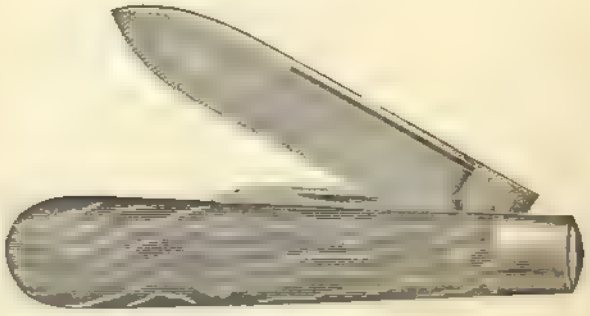
No. 1671C—Two Blades, Clip Point, Iron Handle, ... $6.00

No. 1671S—Two Blades, Spear Point, Iron Handle, . . . 6.00

Half Dozen in a Box

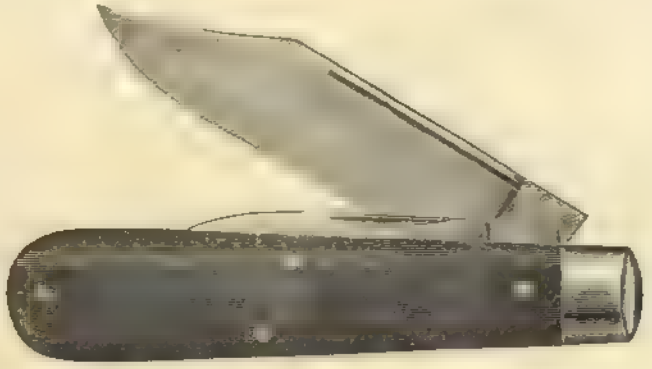
Pocket Knives.

Damascus.



Per Dozen

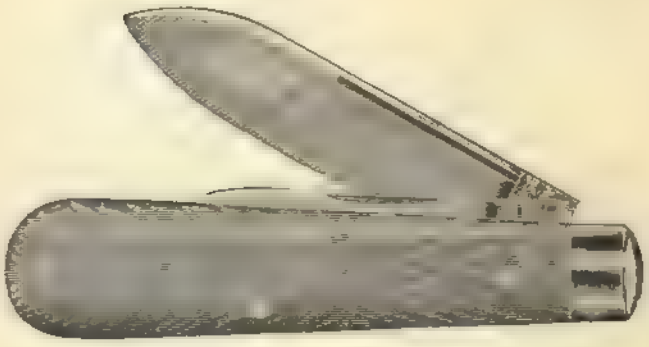
No. 1555 Two Blades, Cocobolo Handle, Iron Lined, ... $4.00



Per Dozen

No. 1007E –Two Blades, Ebony Handle, Iron Lined, ... $4.00

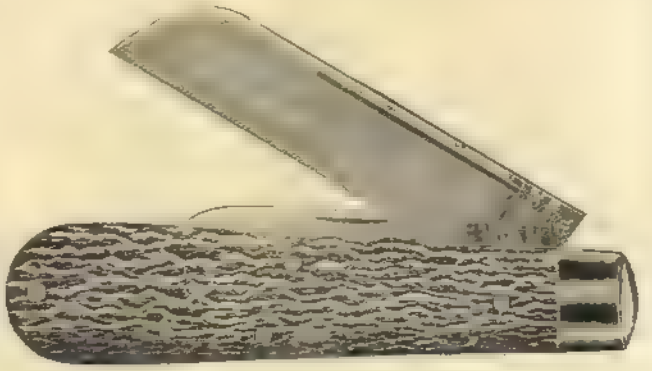
No. 1009R—Two Blades Rosewood Handle, Iron Lined, . . . 4.00



Per Dozen

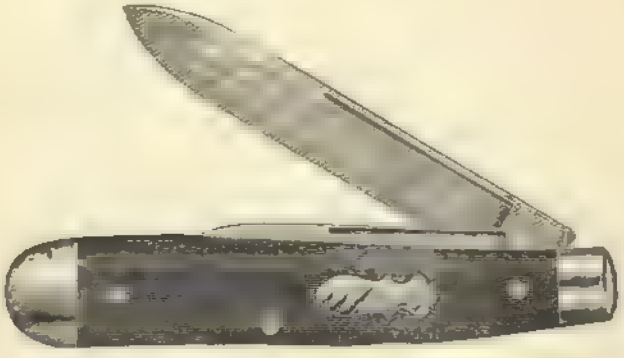
No. 1008—Two Blades, Rosewood Handle, Iron Lined, ... $4.00

No. 1282—Two Blades, Stag Handle, Iron Lined, ... 4.00



Per Dozen

No. 1282½—Two Blades, Stag Handle Iron Lined . . . $4.00



Per Dozen

No. 1138—Two Blades, Ebony Handle, German Silver Cap and Bolster, Brass Lined, . . . $8.00

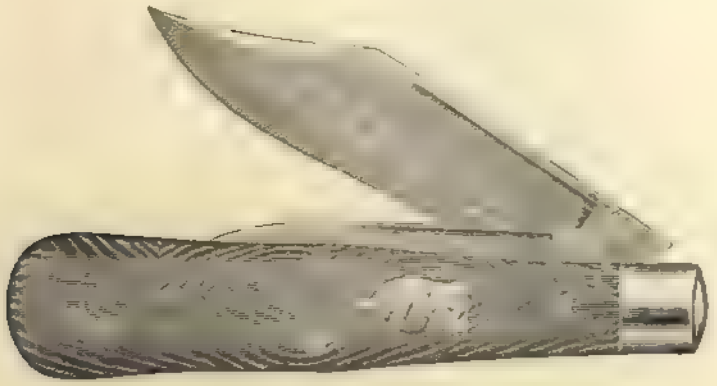
Per Dozen

No 1500—Two Blades, Ebony Handle, German Silver Bolster and Shield, Brass Lined, . . $8.00

Half Dozen in a Box

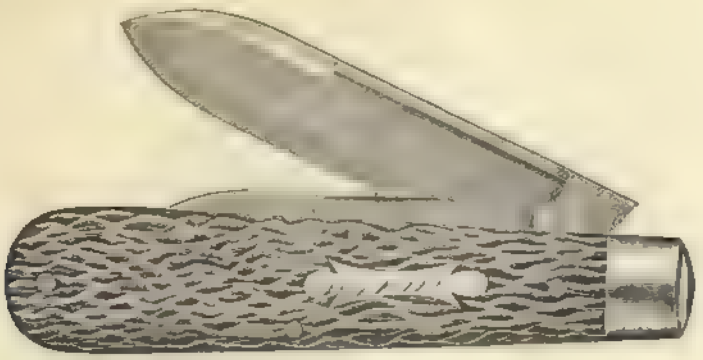
Pocket Knives.

Damascus.



No. 1681—Two Blades, Cocobolo Handle, Iron Lined, ... Per Dozen $8.00

No. 1953—Two Blades, Cocobolo Handle, Iron Lined . . . . . Per Dozen $8.00



	Per Dozen
No. 823—Two Blades, Stag Handle, Iron Lined, ...	$8.00
No. 821—Two Blades, Ebony Handle, Iron Lined, ...	8.00
No. 820—Two Blades, Rosewood Handle, Iron Lined, ...	8.00

Half Dozen in a Box

BAKER & HAMILTON

Pocket Knives.

Damascus.

	Per Dozen
No. 6286—Four Blades, Gray Buffalo Handle, German Silver Bolsters, Brass Lined,	$30 00
No. 6285—Four Blades, White Bone Handle, German Silver Bolsters, Brass Lined,	30 00
No. 6284—Four Blades, Stag Handle, German Silver Bolsters, Brass Lined,	30 00

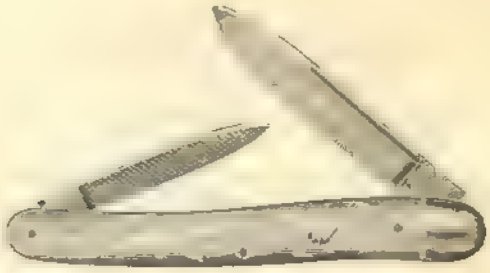
	Per Dozen
No. 6282—Four Blades, Stag Handle, German Silver Bolsters, Brass Lined,	$30.00
No. 6282½—Four Blades, Gray Buffalo Handle, German Silver Bolsters, Brass Lined,	30 00
No. 6283—Four Blades, White Bone Handle, German Silver Bolsters, Brass Lined,	30 00

Half Dozen In a Box.

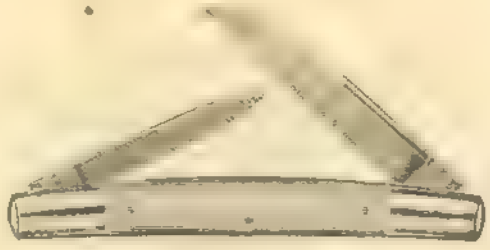
Pocket Knives.

Damascus.

No. 5712—Two Blades, Ivory Handle, Brass Lined, ... Per Dozen $8.00
No. 5714—Two Blades, Pearl Handle, Brass Lined, ... 12.00



No. 4972—Two Blades, Pearl Handle, German Silver Bolster, Brass Lined . . . . Per Dozen $15.00



No. 6596 Two Blades, Pearl Handle, German Silver Bolster, Brass Lined . . . Per Dozen $9.00

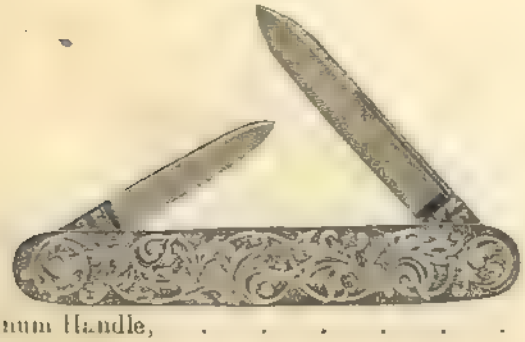
No. 6404—Two Blades, Pearl Handle, German Silver Bolster, Brass Lined, ... Per Dozen $12.00

No. 6681—Two Blades, Pearl Handle, German Silver Cap and Bolster, Brass Lined, . . . Per Dozen $12.00

Half Dozen in a Box.

Pocket Knives.

Damascus.

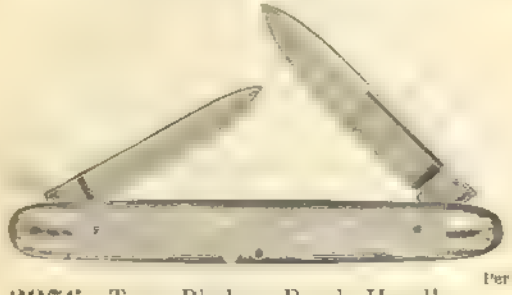


No. 6273—Two Blades, Aluminum Handle, ... Per Dozen $9.00

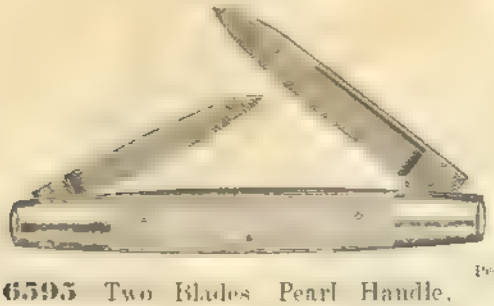
No. 2073—Two Blades, Pearl Handle, Brass Lined, ... Per Dozen $8.00

No. 2071—Two Blades, Pearl Handle, Brass Lined, ... Per Dozen $8.00

No. 2074—Two Blades, Pearl Handle, German Silver Bolsters, Brass Lined . . . Per Dozen $8.00



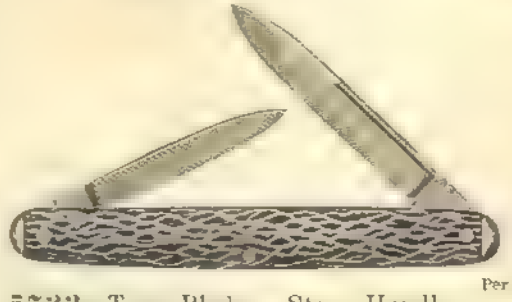
No. 2076—Two Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $8.00



No. 6595—Two Blades Pearl Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $9.00

No. 5848—Two Blades, Ivory Handle, German Silver Bolsters, Brass Lined, ... 9.00

Half Dozen in a Box

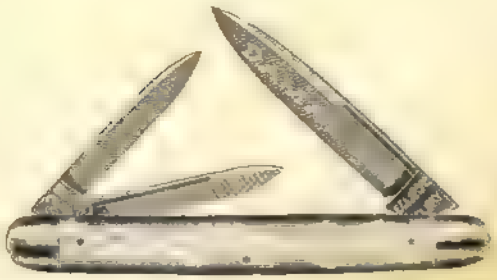


No. 5733—Two Blades Stag Handle, German Silver Tips, Brass Lined, ... Per Dozen $12.00

BAKER & HAMILTON

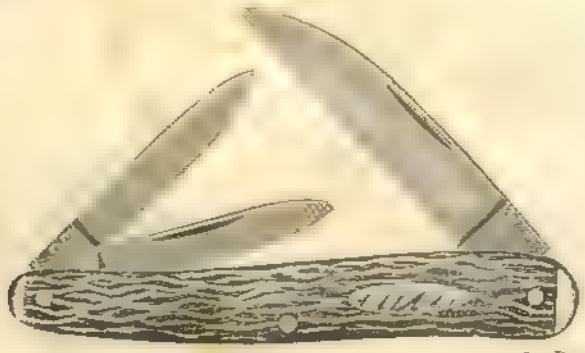
Pocket Knives.

Damascus.



Per Dozen

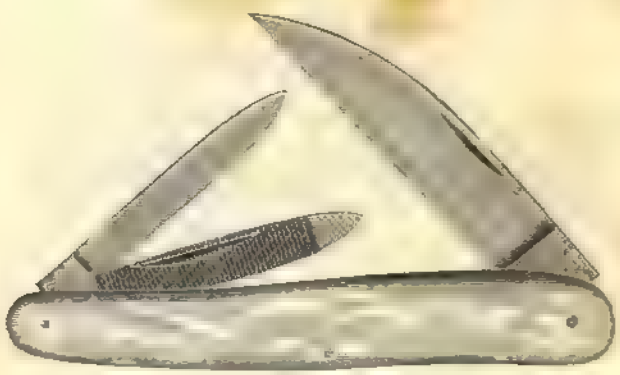
No. 5693—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, . . $18.00



Per Dozen

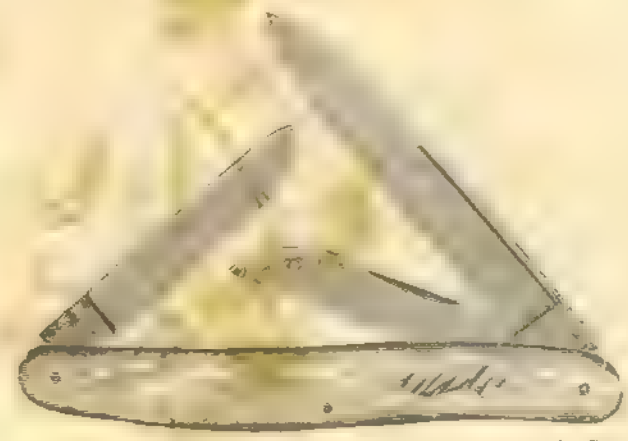
No. 6215—Three Blades, Stag Handle, German Silver Tips, Brass Lined, ... $18.00

No. 6216—Three Blades, Pearl Handle, German Silver Tips, Brass Lined, ... 30.00



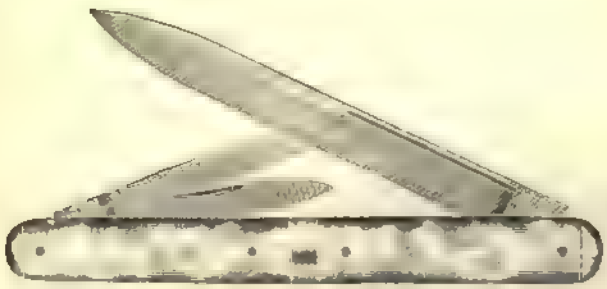
Per Dozen

No. 6559—Three Blades, Pearl Handle, Brass Lined, ... $30.00



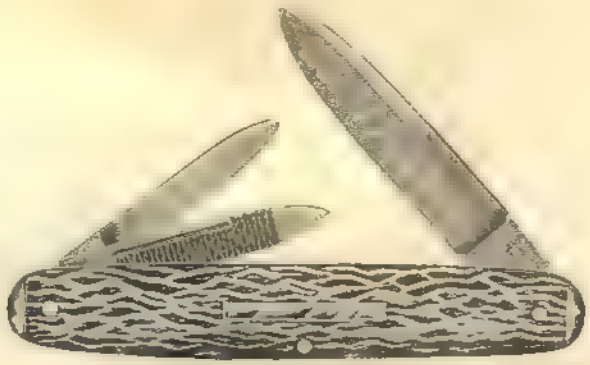
Per Dozen

No. 6320—Three Blades, Pearl Handle, Brass Lined, ... $36.00



Per Dozen

No. 6237—Three Blades, Pearl Handle, German Silver Tips, Brass Lined, ... $24.00

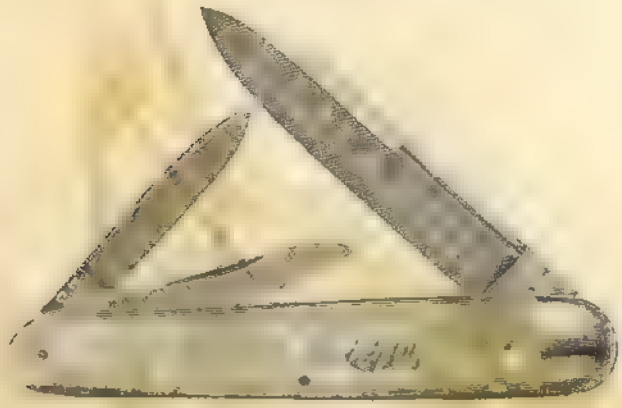


Per Dozen

No. 5613—Three Blades, Stag Handle, German Silver Tips, Brass Lined, ... $18.00

Pocket Knives.

Damascus

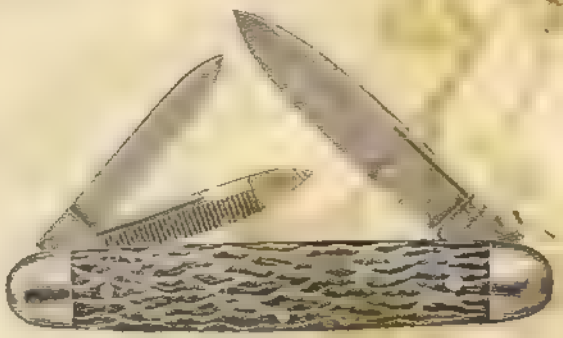


Per Dozen

No. 5153—Three Blades, Pearl Handle; German Silver Bolster, Brass Lined, ... $30.00

No. 5758—Three Blades, Stag Handle, German Silver Bolster, Brass Lined, ... 18.00

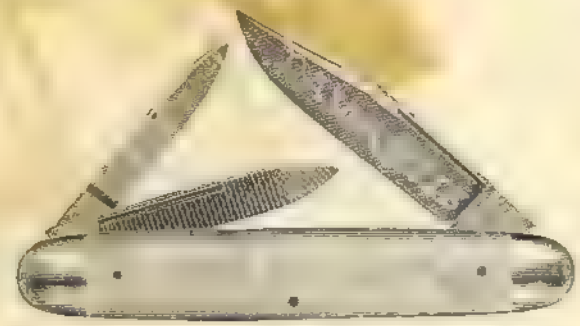
BAKER & HAMILTON



Per Dozen

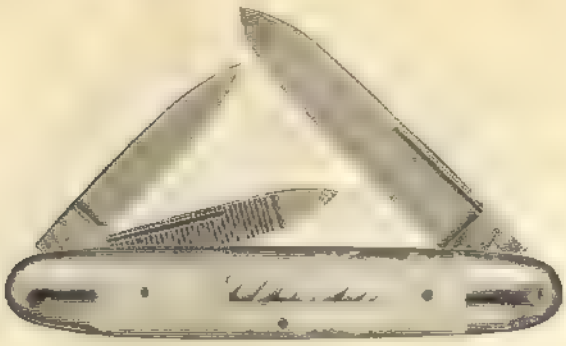
No. 6155—Three Blades, Stag Handle, German Silver Bolsters, Brass Lined, ... $18.00

No. 7080—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... 18.00



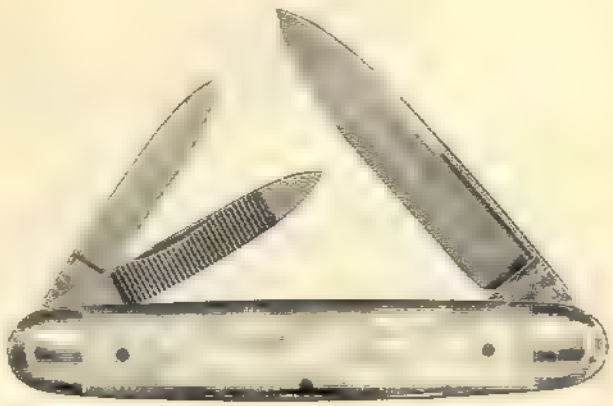
Per Dozen

No. 7082—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... $18.00



Per Dozen

No. 6727—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... $18.00



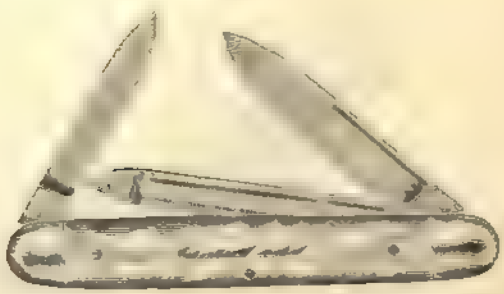
Per Dozen

No. 6380—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... $18.00

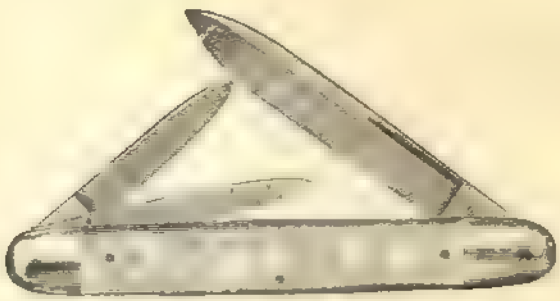
Half Dozen in a Box

Pocket Knives.

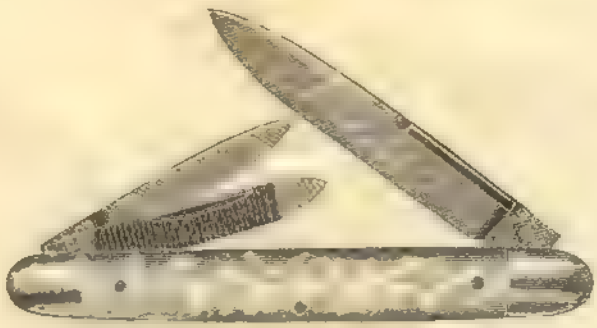
Damascus.



No. 4948 -Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined . . . Per Dozen $24.00

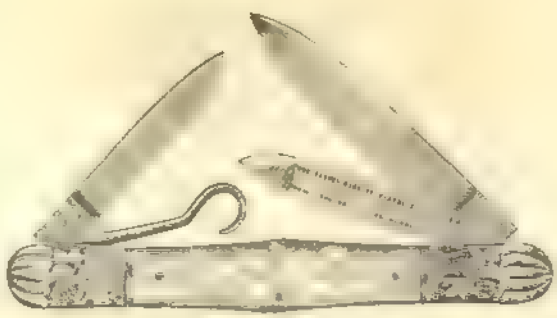


No. 7002—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $18.00



No. 6295 Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $24.00

No. 5956—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $24.00



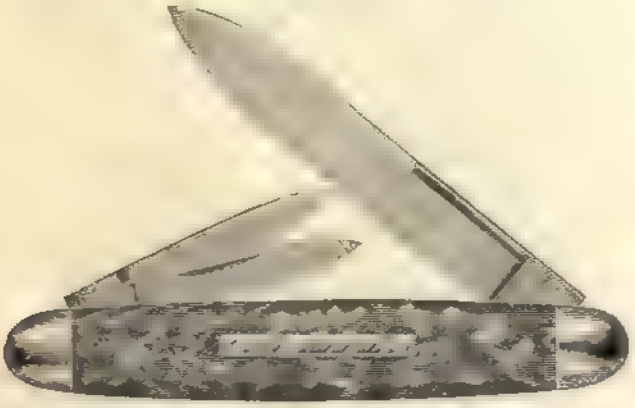
No. 6059 —Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $24.00

No. 6059S—Three Blades, Shell Handle, German Silver Bolsters, Brass Lined, ... 24.00

Half Dozen in a Box

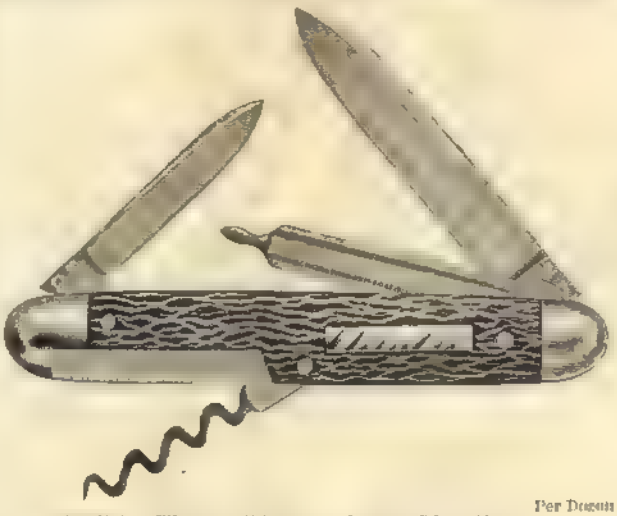
Pocket Knives.

Damascus

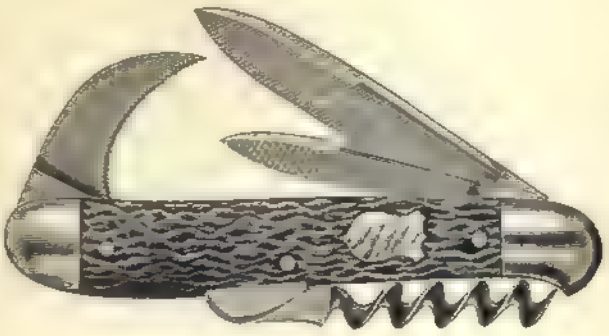


	Per Dozen
No. 5740—Three Blades, Shell Handle, German Silver Bolsters, Brass Lined,	$18 00
No. 5695—Three Blades, White Bone Handle, German Silver Bolsters, Brass Lined	18 00
No. 5615—Three Blades, Stag Handle, German Silver Bolsters, Brass Lined,	18 00
No. 5801—Three Blades, Gray Buffalo Handle, German Silver Bolsters, Brass Lined,	15 00
No. 5759—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined,	24.00

BAKER & HAMILTON

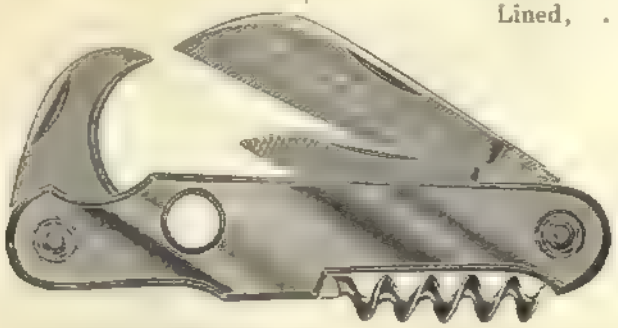


No. 6652—Three Blades, Stag Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $24 00



No. 6070—Three Blades, Stag Handle, German Silver Bolsters, Brass Lined, ... Per Dozen $36.00

No. 6071—Three Blades, Pearl Handle, German Silver Bolsters, Brass Lined, ... 48.00

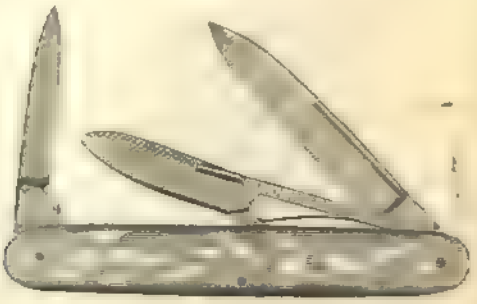


No. 5821—Three Blades, German Silver Handle, ... Per Dozen $24.00

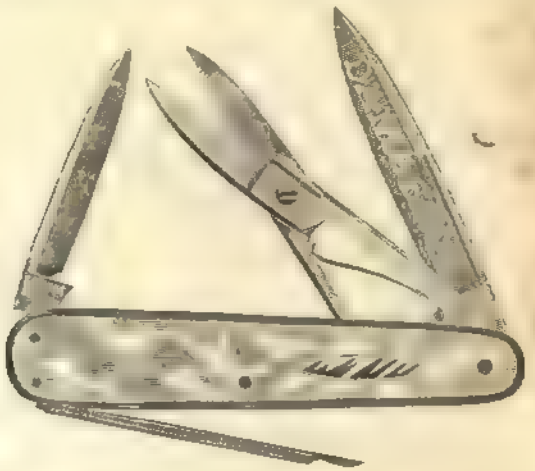
Half Dozen in a Box.

Pocket Knives.

Damascus.



No. 3010—Two Blades, with Scissors, Pearl Handle, Brass Lined. . . . . Per Dozen $30.00



No. 6219—Three Blades with Scissors, Pearl Handle, Brass Lined . . . . . Per Dozen $48.00

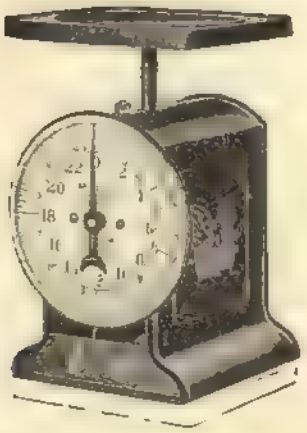
No. 5598P —Three Blades, Pearl Handle, with Button Hook, Scissors and Cork Screw, German Silver Tips, Brass Lined . . . . . Per Dozen $60.00

No. 5598ST—Three Blades, Stag Handle, with Button Hook, Scissors and Cork Screw, German Silver Tips, Brass Lined. 48.00

Half Dozen in a Box

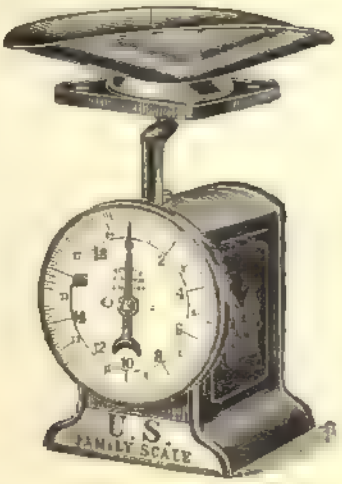
BAKER & HAMILTON

Scales.



Code Catachanna. — Each

No. 102—U. S. Family, Height 10 In., Brass Dial, Diameter 5⅛ In., Japanned Iron Top Plate, Weighs 20 lbs. by ½ oz., . . $1.75
Weight, 6⅛ lbs. Each.



Code Catachyse. — Each

No. 1002—U. S. Family, Height 10 In., Brass Dial, Diameter 5⅛ In Tin Scoop, Weighs 20 lbs. by ½ oz., ... $1.85
Weight, 7 lbs. Each.

Scale Beams.

Japanned, Striped with Red, Complete, with Poises.

Nos.	150	200	250	300	360	400	500	600
Code	Catachino.	Catachisno.	Catachysmi	Catacolto.	Catacombe.	Catacumba.	Catacumbis.	Catadroma.
Capacity, lbs.	150	200	250	300	360	400	500	600
Poises, lbs.	1 and 4	1 and 4	2 and 8	2 and 8	4 and 18	3 and 12	4 and 16	8 and 16
Weight Each, lbs.,	7½	7½	13	15	18	21	28	32
Each,	$1.50	1.60	1.90	2.10	2.50	2.90	3.50	4.00

Extra Scale Beam Poises.

Nos.	1	2	3	4	8	12	16
Code	Catachates.	Catafalchi.	Catafalco.	Catafalque.	Catafalco.	Catafota.	Catafracta.
Weight, Each, lbs.,	1	2	3	4	8	12	16
Each,	$0.25	.30	.40	.50	.85	1.10	1.50

50 H. P. *AUSTIN* 1906 Model

EXCLUSIVE AUSTIN FEATURES

New complete DOUBLE IGNITION system, improved (patented) sliding gear transmission (selective type), FOUR FORWARD SPEEDS with new (patented) method of operation, new (patented) SPRING CONTROLLER absorbing recoil. A BEAUTIFUL and exceptionally well built car, STRONG in every part. Write for full particulars.

Austin Automobile Co.
GRAND RAPIDS, MICH.

50 H. P. *AUSTIN* 1906 Model

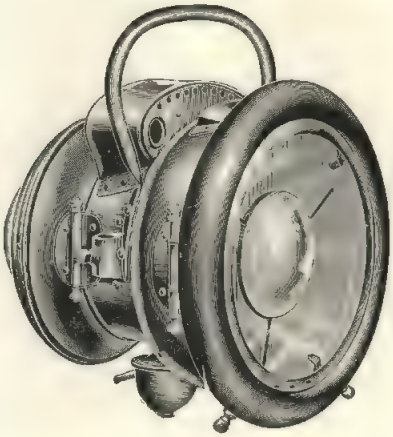
EXCLUSIVE AUSTIN FEATURES

New complete DOUBLE IGNITION system, improved (patented) sliding gear transmission (selective type), FOUR FORWARD SPEEDS with new (patented) method of operation, new (patented) SPRING CONTROLLER absorbing recoil. A BEAUTIFUL and exceptionally well built car, STRONG in every part. Write for full particulars.

Austin Automobile Co.
GRAND RAPIDS, MICH.

AUTOLYTE

MODEL 1906



100.	Diameter of front, 9 inches;	Depth 9 inches.	Price, $12.50
101.	" " 10 "	" 10 "	" 15.00
102.	" " 11 "	" 11 "	" 20.00

NOTE: These are New Style **Open Back and Front**

Write for discount and advance sheet of lamps and imported horns.

A. H. FUNKE

83 Chambers Street - New York

MOLINE

FOR 1906

Model "A" 30-35 HORSE POWER TOURING CAR **$2500.00**

Plenty of Power—Plenty of Room—Plenty of Speed

Some of the nice features are :

Four cylinder vertical water-cooled motor under the hood, ground cylinders, ground pistons, ground crank shaft bearing surfaces.

Three speed sliding gear transmission; Hill Precision Oiler; Pressed Steel frame; Hollow steel dash; Steel running boards; Vesta Accumulator.

Double side entrance body for five passengers, luxuriously roomy and elegantly finished.

Model "C" 18-20 Horse Power Light Touring Car **$1750.00**

NEAT NOBBY-NICE

All the up-to-date features found in the larger car, only on a smaller scale. Four cylinder, vertical water-cooled motor under the hood with ground cylinders, ground pistons and ground crank shaft bearing surfaces.

Three speed sliding gear transmission; Pressed steel frame; Hill Precision Oiler; Vesta Accumulator; Hollow steel dash; Metal running boards.

Stylish new design of double side entrance body with highest grade upholstering and finish.

Model "G" 16 HORSE POWER TOURING RUNABOUT **$1000.00**

POWERFUL SUBSTANTIAL—HANDSOME

New design of double opposed motor; larger cylinders, longer stroke, larger bearing surfaces. More than enough radiation, positive water circulation. Hill Precision Oiler.

Latest style double side entrance, detachable tonneau body with divided front seats.

The best two cylinder motor proposition in the market for 1906.

We are increasing our facilities and will more than double the output of last season. We will not oversell our output and will protect our agents on deliveries.

Moline Automobile Co.

East Moline, Illinois

You need not fear competition if you handle

Baker Electric Vehicles

next year

Their reputation for practical efficiency has given them first place among vehicles of the electric type. They are a pleasure to sell and a pleasure to own. The automobilist who wants a safe, simple and satisfactory car, cannot do better than buy a BAKER.

DEPOT CARRIAGE. PRICE, $3000

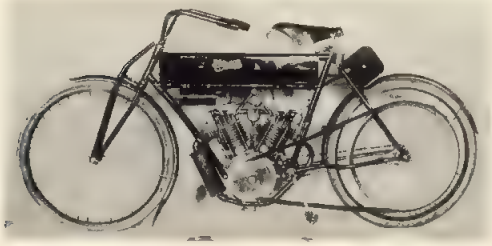
We make other models, including Runabouts, Stanhopes, Doctors' Carriages and Surreys. Prices, $1000 to $3000.

Catalog and full information upon request.

Baker Motor Vehicle Co.

CLEVELAND, OHIO

The only exclusive manufacturers of electric pleasure vehicles in America



The 2-Cylinder Curtiss 1906 Motor Cycle

The Curtiss 1906 Motor Cycle

The 1906 models of the recently incorporated G. H. Curtiss Mfg. Co., of Hammondsport, N. Y., will consist of new and improved single and double cylinder motor cycles, 2½ and 5 H. P., respectively. A new side car made by them is described in another part of this issue of the Journal.

The engines have undergone considerable change. The crank case is narrower, but the flywheels are of a larger diameter, giving more balance with less weight than heretofore. The double cylinder engine has also been greatly lightened and simplified in other respects. One notable feature is that the exhaust valves of both cylinders are operated from a single cam and gear. The engine weighs 55 lbs. and develops 5 H. P. The single cylinder weighs 40 lbs. and develops 2½ H. P.

Frame height is 22 ins.; wheel base, 56 ins.; wheels, 28 ins.; tires, G. & J., 2½ ins.; saddle, Person's Royal Motor Seat; handle bars 22 ins. wide, reinforced, fastened by both expander and compression clamp; mud guards front and rear; regular finish black; grip control, muffler cutout; oil capacity, one qt.; gasoline capacity, two gallons.

This machine is extremely silent running, and has a great range of speed, being capable of a mile a minute or better. The single cylinder model is of the same general construction and equipment, but is fitted regularly with 2 in. G. & J. tires.

The 1906 "Speedistimeter"

The Lea "Speedistimeter," which was brought out early in 1905, has been improved for 1906 by the substitution of a Chelsea high grade clock movement for the movement before used. The works only require winding every eight days. The first instruments produced contained clocks of average quality, but it was the desire of the manufacturer to have nothing about the Lea Speedistimeter that was not essentially the very best in every feature, and it became necessary to adopt a clock movement which was recognized standard among all authorities on high-grade clocks. The Chelsea movement used in this instrument is the same as is retailed alone for nearly half of the price of the Lea Speedistimeter when separately cased, and the standard of the instrument as a whole may be based upon the well recognized reputation which the Chelsea clock now occupies.

The special feature of the Lea Speedistimeter, which is covered by letters patent, is the attachment fixtures which have not here-

New Dial and Indicator of Lea "Speedistimeter"

tofore been illustrated in these columns. The attaching fixtures are unique and universal, being applicable to any make of car without change. Should any foreign substance get between the gear and the pinion, the pinion is simply thrown around on one of the ball joints and no harm can be done. This instrument is made by the Motor Car Specialty Co. of Trenton, N. J., and Wm. S. Jones, 112 North Broad St., Phila., is sole selling agent.

The most important issue of the year is the January "Buyers' Guide Special" issue of the Cycle and Automobile Trade Journal. It will contain over 700 pages, including a complete classified directory of the trade. Single copies will sell for 50 cents, but it is included without extra charge in a year's subscription at $1.00. Subscription blank on page 333.

Berk-shire

Side Entrance Tonneau, Four Cylinder, Water Cooled

Light Touring Model A. 18 Horse Power . . . . . Price **$2.000**
Touring Model B, 30 " " . . . . . " **2,500**

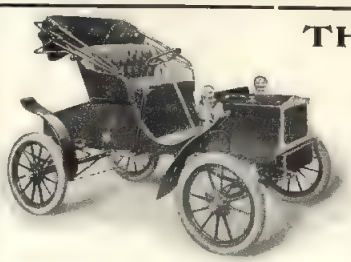
Berkshire Automobile Co.

Pittsfield, Mass., U. S. A.

Write for Catalogue before placing your order for your cars.

DOUGLAS ANDREWS CO., 1625 Broadway, New York City, Exclusive Sales Agents

ANNOUNCEMENT



THE GALE 1906

SIMPLE
ARTISTIC
FAST
ELEGANT

MODEL D

MODEL C—$600.00—8 H. P. Single Cylinder, any tire.
MODEL D—$650 00—8 H. P. with full cape top and aprons.
MODEL E—1250.00—18 H. P., double opposed, any tire.
MODEL F—1350.00—18 H. P. with full cape top and aprons.

WE DO NOT OBJECT TO ANSWERING INQUIRIES.

WRITE

THE WESTERN TOOL WORKS, GALESBURG, ILLINOIS, U. S. A.

THE SILENT NORTHERN

You cannot enjoy touring unless your car rides comfortably. The Northern Touring Car with full elliptical springs is the most comfortable riding car in the world. Absolutely Noiseless, no belts, chains, gaskets, truss rods or strut rods to to give trouble. New mechanical features of real value. Why not send for our catalogue and learn more about the latest development in construction?

Don't overlook the Sturdy Northern Runabout $650.

NORTHERN MANUFACTURING CO., Detroit, Mich.
Members A. L. A. M.

Self-Starting from the Seat

"Matheson"

"America's Finest Motor Car"
1906 Models—40 and 60 H. P.

Our New Factory, now building, in Wilkes-Barre, Pa., will be one of the largest and most modern automobile plants in existence. We will move into this new plant about January 1st, 1906. Address until then

MATHESON MOTOR CAR CO. HOLYOKE, MASS.

The 1906 Loomis Carburetor

CIRCULATING PUMP

In the 1906 LOOMIS CARBURETOR we feel that we have reached the highest point of perfection in the development of automatic carburetors. LOOMIS CARBURETORS have always been noted for their simplicity, durability and efficiency, but the New Loomis has many superior points, which place it far in advance of others, among which are—***Absolutely automatic in operation, less consumption of fuel, even mixture at all speeds, perfect throttle, increase of power.*** Send for price-list.

The Loomis Muffler

BEST of them all

The fact that there are more LOOMIS MUFFLERS in use than those of any other manufacturer, is proof that it accomplishes its work in the most thorough manner. If you are interested in lessening the noise of your automobile or motor boat, write us.

LOOMIS AUTOCAR CO. WESTFIELD, MASS.

PATENTED JULY 12 1904.

TAKE YOUR $5.00 BACK

If at the end of 30 days' trial you don't feel absolutely sure that the "SKINNER" is the best automobile tire pump, and the easiest to operate, that you have ever tried or ever seen.

SKINNER PUMPS

are compact, light and convenient for carrying.

The $5.00 you send us will not be considered as a payment, but merely as a deposit, which you can withdraw as easily as if it were deposited in your own bank. All we want you to do is to give this pump a trial—

See for yourself its simplicity—no gears or complex mechanism to get out of order.

See for yourself how easy it is to operate—mere child's play to fill your tire compared with other pumps.

See for yourself the superior workmanship and high-class materials.

See for yourself that it is a

Labor Saving, Time Saving, Satisfaction Giving Pump

Cut out and mail the attached coupon to-day. It doesn't cost you a cent to try it. We PREPAY EXPRESS charges.

REFERENCE:
Illinois Trust & Savings Bank, Chicago

MAIL THIS COUPON TO-DAY

SKINNER & REISNER MFG. CO., Chicago. Ill.
Gentlemen: Please send me, prepaid, one of your 30-inch compound tire pumps. I am to have the privilege of returning the pump to you within 30 days and receive my money back if it does not prove satisfactory in every respect.
NAME.
ADDRESS.

National

Motor Cars

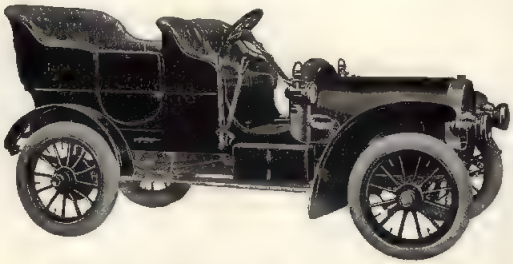
Are Always Reliable

A 1906 **NATIONAL STOCK CAR** won the 100 mile track race for stripped stock cars at Indianapolis, on Nov. 4th, doing the **100 miles in**

1 Hour—53 Minutes—21½ Seconds

Breaking the WORLD'S RECORDS against time and in competition.

We have more of the same kind of cars. "Watch for the Round Radiator."



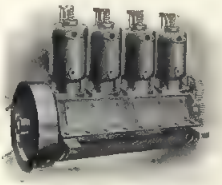
National Model D. 4 Cylinders

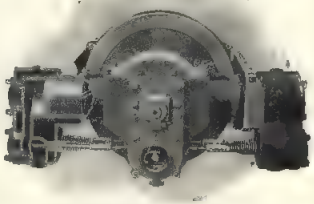
WRITE FOR DETAILS

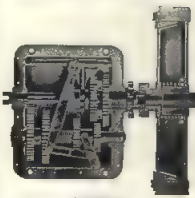
National Motor Vehicle Co.

1003 E. 22d St., Indianapolis, Ind.

Model Engines, Transmissions, and Finished Cars







ENGINES

Double opposed engines, 12 to 24 H. P.
Air-cooled 4 cylinder vertical engine, 20 H. P.
Water-cooled 4 cylinder vertical engines, 25 to 80 H. P.

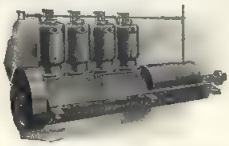
TRANSMISSIONS

Sliding gear, 3 forward speeds and reverse, either chain or shaft drive.

Planetary, 2 forward speeds and reverse; also 3 forward speeds and reverse.

CARS

We build 6 different type cars, in sizes from 12 to 24 H. P., all with double opposed cylinder engines, ranging in prices from $700.00 to $2,000.00.



Special Cars and Trucks

We build special cars and trucks ranging in prices from $1,000.00 to $10,000.00.

MARINE ENGINES

Single cylinder marine engines, 2 to 6 H. P.
4 cylinder marine engines, 15 to 500 H. P.

We also build a line of stationary engines up to 500 H. P. We claim to have the most complete line of stationary, marine and automobile engines, and transmissions, of any concern in the country, and if you want a special car built to your order let us have your specifications and we shall be pleased to submit you quotations.

Model Gas Engine Works

Lock Box 2027, Auburn, Indiana

NewYork Office, B-21 Produce Exchange. **Cable Address, Gasengine, New York.**

1906 Peerless Cars

VICTOR LOUGHEED.

The feature of the 1906 line of the Peerless Motor Car Company is a thirty-five horse power car that presents a large number of interesting innovations, though, of course, in its general structure it conforms to standard practice.

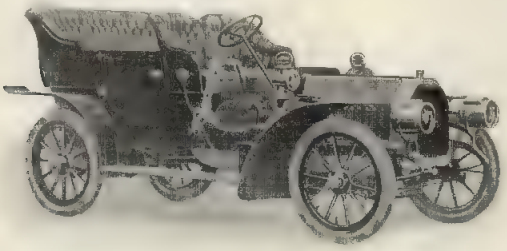
THE ENGINE.

The motor consists of four vertical cylinders cast in pairs, imported from France. The heads are integral, and the exhaust and inlet valve chambers also form parts of it, being on opposite sides. The valves are interchangeable, valve-chamber plugs above them permitting ready removal.

The bore is four and one-half inches, and the stroke five inches. After boring, the cylinders are ground and lapped to insure great accuracy and to afford a perfect finish. Eccentric cast iron piston rings, four at the top of each piston, insure retention of compression.

The crankshaft is carried on three bearings, of Parson's white bronze—a sort of hard babbitt. The maximum engine speed is twelve hundred revolutions a minute, the minimum is one hundred and fifty and the rated thirty-five horsepower is developed at nine hundred revolutions a minute.

The gears that drive the two camshafts are enclosed in a housing, which forms a part of the aluminum crankcase, and the camshafts are enclosed at all bearing-points. The camshaft bearings also are of white bronze.



The Peerless 1906 Model, 14, 30 H. P. Price $3750. double side entrance body. Equipped with horn, 2 oil 34x4 in. tires, wheel base 107 in., tread 56 in. motor lamps, 2 searchlights and oil tail lamp.

The Peerless 1906 Internal Expanding Clutch, operated by a foot pedal, the location of which on foot board can be varied to suit either long or short. mov.

The carburetter is a peerless device, comprising the usual float feed and atomizing nozzle and compensated automatically by a spring-seated poppet valve and by a valve interconnected with the throttle lever.

The throttle is in the induction pipe, above the carburetter. The induction pipe has but one fork, each half of it leading to a valve chamber, into which open the inlet valves of two of the cylinders.

RADIATION.

The cooling is by a finned tubular radiator, which, with the jackets and piping, contains about six gallons of water. The flat tubes of the radiator are about one quarter of an inch in one dimension by one inch in the other, and they are arranged in a set of three, which make fifteen horizontal turns through which the water flows in series. The total area of cooling surface is one hundred and twenty-five square feet. A peculiar feature of this radiator is that the only tank space in it is at the bottom, and that a pipe from the filling nozzle leads directly down to this space, so that the water quickly enters here and rises to the top, forcing all air out of the system ahead of it. A drain tap is provided at the lowest point in the system.

A centrifugal pump, gear-driven by an extra gear meshing with the inlet-cam gear, provides the circulation.

The piping from the top of the radiator leads to caps that cover four-inch holes in the tops of the waterjackets; while the piping from the bottom of the radiator leads

ANNOUNCEMENT

The 1906

Rainier

30-35 H. P.

has arrived. Come and inspect, ye automobile experts—you who really appreciate beautiful workmanship and design and you will admit that at last THE American automobile has come. Look over the following specifications, then call and try the car.

Engine	30-35 H. P., 4 cylinders, water cooled.
Ignition	Sims-Bosch Magneto—make and break spark.
Transmission	Sliding train 3 speeds forward and one reverse.
Rear Axle	Bevel gear drive, clutch driven hub. Ball bearings.
Front Axle	I beam section. Ball bearings.
Frame	Cold rolled pressed steel, aluminum under bonnet covering entire engine and transmission.
Wheel Base	104 inches.
Wheels	Imperial whalebone, grade A 2nd growth hickory.
Tires	Continental 34 x 4.
Valves	Mechanically operated, inlet and exhaust interchangeable.
Carburetor	Float feed, requiring no adjustment.
Brakes	Two internal expansion, dust protected, operating on rear hubs through emergency lever, holding either forward or backward. Foot brake operates on propeller shaft. Both brakes bronze against steel.
Body	Full aluminum, double side entrance.
Equipment	Two head lights, 2 side lights, 1 rear light, 1 horn.

Price, $4,000

The 22-28 H. P. will be continued as heretofore, without any changes.

4 cylinder—98 inch wheel base—La Coste coil. French battery. Continental tires. Aluminum side door body.

Price, $3,500

Both Models Guaranteed Free of Repairs for One Year

The world's broadest and most liberal automobile guarantee. Landaulet bodies for immediate delivery. Limousines for November delivery.

THE RAINIER COMPANY, Broadway, Cor. 50th St., NEW YORK

Boston Agents: MORRISON-TYLER MOTOR CO.

Good Agents wanted in unassigned territory.

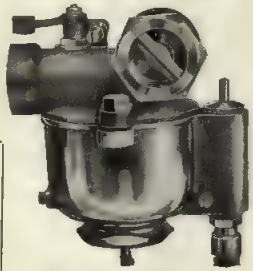
Holley Carburetors

have been adopted and are used exclusively by the largest and most successful automobile manufacturers in the country, including the Winton Motor Carriage Co., Olds Motor Works, Ford Motor Co., E. R. Thomas Motor Co., Wayne Automobile Co., Mitchell Motor Car Co, and many others.

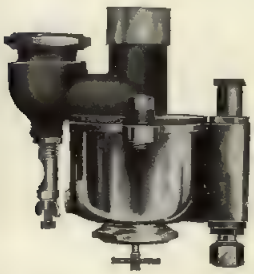
PRICES:

TOP OR SIDE OUTLET WITH STANDARD PIPE CONNECTIONS

½ inch and ¾ inch Gasoline Outlet,	$11.00
1 inch Gasoline Outlet - -	12.00
1¼ inch " " - -	13.00
1½ inch " " - -	14.00



Standard E Side Outlet



Special Carburetor for 10 and 12-H.P. Four-Cylinder Franklin

MARVELOUS RESULTS have been obtained with this size.

Price, including special connection, $12.00

Special Carburetor for 1905 Winton Models B and C. Price, including Manifold as shown above, $18.00.

Type O

Special size for

Oldsmobile Runabout,	$12.00
Tonneau Car -	11.50
Touring Runabout	11.50
Ford 10 H. P. Model C	11.50

Write for full information. Circular A sent on request.

HOLLEY BROS. CO., 668 BEAUBIEN ST. DETROIT, MICH.

SPECIAL OFFER TO DEALERS

Sent on receipt of attached coupon, giving name of car sold.

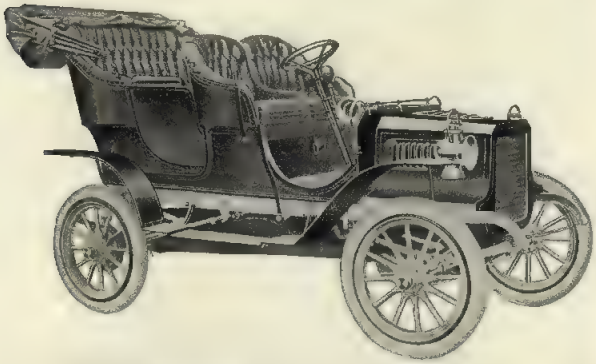
IMPORTANT—Send to-day

Cut Here

Name of Dealer.....

Address.....

Car Sold.....



REO for 1906

Built for What Happens

What REO Cars did in the past year demonstrated them built not for imaginary occasions but for actual motoring—and always ready for the unexpected.

It was *actual* weather and *real* mud that made many of the 30 starters in the Chicago-St. Paul tour quit half way and finish by rail. But the REO was one of the only four to come in on schedule time and on their own wheels.

Pecowsic and Paddock Hills—up which REO stock cars held a 26-mile clip on a 12 per cent. grade, and captured 4 cups from cars of double their power-rating and price are not theoretical difficulties, but *genuine* hills that call for *genuine* power.

Old Mt. Washington is no stage scenery; but a *veritable* mountain. Up its 8 miles of ragged, dangerous, 10 to 15 per cent. grade (with patches of 25 per cent.), a REO car, in the great "Climb to the Clouds" cut down its class record 23 minutes, and beat its nearest competitor a minute to the mile.

Those were *practical* rocks and deep, *substantial* sand in the 1,050 miles of the famous Glidden Tour, over which two REO cars, without stoppage or repairs, carried 4 passengers each at a total cost of $8.10 per passenger.

The 1906 REOS do it all a shade better because of the same splendid construction; and a few slight improvements which put them right up to "concert pitch."

Write for the REO book that tells why.

REO 1906 Touring Car 16 h. p., 1550 pounds, 90-inch wheel base, 5 passengers, side door detachable tonneau. Speed 35 miles per hour **$1250**

REO 1906 Runabout convertible into a 4-passenger car. 8 h. p., 900 pounds, 2 passengers. 25 miles per hour **$650**

Or with folding seat to carry two extra passengers facing forward..... **$675**

REO Motor Car Co. Sales Department, Lansing, Mich.
R. E. Olds, *President*; R. M. Owen, *Sales Mgr.*

Agencies throughout the United States

REO For 1906

Righter Than Ever

From their very beginning REO cars were right. What they did in the past year proves it. The 1906 models will do **the same and more of it.**

We have not altered any essential feature that made REO cars beat their nearest competitor a minute to the mile in the great "Climb to the Clouds" up Mt. Washington; win 3 cups in the famous Paddock Hill contest over cars of double their rating and price; and earn First-Class Certificates of Honor in the Glidden Tour; for an endurance and economy record never equalled.

NEW THINGS—Only a few slight changes: An improved oiling device which feeds directly and automatically without a valve. Positive measured charge which proportions itself absolutely to the engine speed. An improved perfectly timed, short-contact commutator—which insures sparking, and economizes current. More graceful bodies than last year—lower in the back, larger, wider and with more tapering hood. These points add a perfecting up-to-the-instant touch to cars already demonstrated in principle and construction right as right can be.

BUILT FOR WHAT HAPPENS

READY OCT. 1st

THE REO 1906 TOURING CAR—16 H. P. 1200 pounds, 98-inch wheel-base, 5 passengers, side-door detachable tonneau. Speed, 35 miles per hour. $1250

REO 1906 RUNABOUT—8 H. P., 800 pounds, 2 passengers. 28 miles per hour. $650.

Write for the REO Book that tells why

REO Motor Car Co.
Lansing, Mich.

R. E. OLDS, President R. M OWEN, Sales Manager

Agencies throughout the United States

THE PUNGS-FINCH

FOUR-CYLINDER. 22 H. P. SLIDING GEAR TRANSMISSION. BEVEL GEAR DRIVE, (DOUBLE SIDE DOOR) $1850.00. (20 H. P. END DOOR) $1700.00. Stands alone in its class. Is the only Four-Cylinder, Bevel Drive Car at less than $2500, that was in use by customers all last season and thoroughly tested out. You don't buy an experiment when you purchase one of these cars. Plenty of power and exceedingly flexible of control. Catalogue for full description.

PUNGS-FINCH AUTO & GAS ENG. CO., Detroit, Mich.

New York Rep.—C. A. Duerr Co. Philadelphia—The Motor Shop

1906 Model, No. 44 **Price, $145.00**

Trans-Continental Record

LOWERED by Wm. Chadeayne, riding 1906 ***THOMAS AUTO-BI.*** No. 44. Considering the time of year the most wonderful performance ever made on a motorcycle. ***But*** the No. 44 is made to ***GET THERE.*** The ***agency*** for a machine like this ***should*** be ***valuable.*** Better investigate.

Advance catalog free.

THE THOMAS AUTO-BI. CO., 1453 Niagara St., Buffalo, N. Y.

Mr. Manufacturer

What has been your carburetor experience in the past.
Has it been entirely satisfactory?
Have you been getting all the efficiency out of your motors that it is possible to get.
Do it in 1906 with a

FISHBACK

NON-FLOAT

The only successful automatic non-float Carburetor on the market.
A perfected Carburetor which is being adopted by many of the leading manufacturers for the coming season.
Are you going to be with them?

WRITE FOR BOOKLET

MASSNICK MANUFACTURING CO.

Manufacturers and Sole Agents

671-673 E. ATWATER STREET DETROIT MICH.

The 1906 Auto-Bi

The 1906 Auto-Bi, made by the Thomas Auto-Bi Co., 1443 Niagara St., Buffalo, N. Y., contains many improvements. The entire control of the machine is accomplished by the use of an adjustable grip on the handle bar which is worked with a friction cone, so that the grip will stay at whatever point it is placed without attention from the rider, thus doing away with the tiring effect produced on the wrists by a loose control grip. Movement to controller is done by two bell cranks

Combined fuel, battery and oil receptacle of the 1906 Thomas Auto-Bi

with connecting rods, using the simple and positive ball joint, of novel construction, designed especially for the Auto-Bi. There is absolutely no variation in speed, due to turning sharp corners, when machine is in motion.

Battery box and gasoline tank are combined. The tank holds 6 quarts and is made very strong, in cylindrical form, with torpedo point. The gasoline needle point is located in the tank, dispensing with an intermediate valve

Engine of the 1906 Thomas Auto-Bi

Loose cells and broken wire connections are obviated, as the No. 6 dry cells are packed in wood, without pasteboard covering, and flexible wire connections are used. The cylinder and cylinder head are cast in one piece. A Thomas Buffalo Mixer is used, and is fastened direct to the motor head. The use of this carburetor makes it possible to run this machine in the coldest weather equally as well as in the summer. Bearings used are of phosphor bronze throughout, with extra large bearing surfaces, and with the use of hardened steel shafts, makes them very durable. Crank case bolts direct to frame, of which it is an integral part, and the lower case can be removed at any time for inspection. Timing gears can be inspected by removing one nut. The exhaust valve lever lift is placed on the outside, making it easily accessible. The Ives Spring Seat Post is used, and has an extra long spring, giving practically the same result as the spring frame without the extra number of parts. The spring idler used is automatic, ball bearing, with large spring adjustment, and is so constructed that the least possible strain is brought to bear on the belt. It being seldom necessary to change the adjustment, this idler is consistent with actual needs. The connecting rod is of phosphor bronze, and is made adjustable to take up possible wear.

This machine is 3 H. P., with 2⅛ in. bore, 3¼ stroke. The wheel has extra heavy spokes, with special wooden rim, and 1¾ and 2-in. Goodrich, G. & J. or Dunlap tires. A Corbin motorcycle coaster brake hub is used.

New Atwater Kent Spark Generator

The Atwater-Kent Mfg. Wks, 112 N. 6th Street, Philadelphia, have perfected a new spark generator which greatly simplifies the ignition system, concentrating as it does a number of functions in one apparatus. It is claimed by the manufacturers that this device does away with continual adjustments, commutator troubles, vibrator difficulties, and is economical of battery current. With it, a single set of Columbia dry cells gives sufficient current to ignite a 4-cylinder engine. A remarkable feature attributed to it is that it uses less current on low speed than on high. It makes one good, large spark for each impulse of the engine, which is constant at all speeds. This device makes, times and distributes the spark. It has been thoroughly tested, several having been run continuously in their factory for a long time and one having been used on a Packard 4-cylinder truck which has run over 800 miles to date without a single miss.

The Cleveland Dealers' Automobile Club, Ohio, will this year promote the annual show instead of the Cleveland Automobile Club. It will be held in the Central Armory, February 18 to 25. George Collister has been engaged as manager.

The Maxwell-Briscoe Motor Co., Tarrytown, N. Y., has recently leased the large brick structures, formerly occupied by the Hope Thread Company, at Pawtucket, R. I. The Maxwell Briscoe Company have taken possession and hope to have it in operation as a branch factory before Christmas. At the start about 200 workmen will be employed. The Maxwell Co. will make all their own bodies.

The Auto Directories Co., 108 Fulton St., New York, have bought out a number of other concerns making a business of compiling directories in the automobile trade, and has consolidated them all under the style, Motor Directories Co. This company publishes lists of automobile dealers and owners weekly

ATTENTION

Write NOW for prices on the American line of Ignition Apparatus. They will interest you.

Our American Indestructible Spark Plug with double insulated mica core is known the world over. It is the only one that will stand the racket and can be relied upon to stand up and do the work under all conditions.

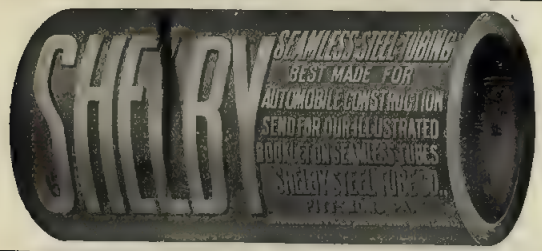
All Coil troubles are eliminated by the use of our coils.

They should figure as a part of your ignition equipment to insure the best results.

AMERICAN COIL CO. WEST SOMERVILLE, MASS.

AUTO SUPPLY CO., 1562 Broadway, N. Y. Representative.

GEO. H. BILL, 506 Golden Gate Ave., San Francisco, Pacific Coast Representative.



1906 MODEL No. 44

THOMAS AUTO-BI

PRICE, $145.00

Just to show you that we have the **best Motorcycle on earth:** Mr. Wm. C. Chadeayne is making the trip from New York to San Francisco with a regular No. 44 stock motor.

The simplest motorcycle ever built. 3-Horse Power, Grip Control, Spring Forks, Thomas Sight Feed Oiler, New Timer, 6-Quart Gasoline Tank

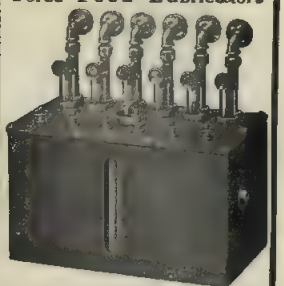
Advance catalogue for the asking

The Thomas Auto-Bi Co.

1443-1453 Niagara St. Buffalo, N. Y.

McCANNA

Force Feed Lubricators



Made of any capacity, any number of feeds. Either rotary or ratchet drive and of finish desired. We publish a booklet, giving useful information about oiling and oiling devices. We will gladly send this for the asking.

McCord & Company

1401-1480 OLD COLONY BUILDING

Chicago, Ill.

R. J. DAY & CO., Pacific Coast Distributors
324-326 Golden Gate Avenue, San Francisco, Cal.

The 1906 Merkel Motor Cycle

The Merkel Motor Co., Milwaukee, Wis., will put out for 1906 a motor cycle similar to this year's model, but with a few important changes. The carburetor throttle is operated by the grip control on the handle bar. This model will be higher powered and higher priced than the 1905 machine. The dimensions of the motor are 3¼ ins. bore x 3 ins. stroke; the cylinder and cylinder head are cast integral, with the inlet and exhaust valves placed at an angle to the head. Both valves are operated mechanically, being actuated from a single cam and rod. Hess-Bright ball bearings are used throughout. The transmission is through bevel gears.

The 1906 "Wagner" Motor Cycle

In the 1906 Wagner motor cycle, made by the Wagner Motor Cycle Co., St. Paul, Minn., are retained the well-known Wagner features, diamond loop frame, twin forks and the V-shaped pulley and belt. The belt adjuster has been improved, so that it is now possible to vary the tension on the belt without dismounting. The idler is ball bearing.

The motor is designed to give the greatest amount of speed and power with the least possible weight, and is the result of 6 years' practical experience on the part of the Wagner Company. The bearings are of the best Royal motor seat; Fauber one-piece crank hanger. The gasoline tank holds 5 quarts and the oil tank 1 quart.

The 1906 "Wagner" Motor Cycle.

bronze, made extra wide to insure long life. The gears used in the motor are integral with the shafts that carry them and tempered; thus the chance for gears to work loose is done away with. The carburetor is very simple in construction, and with the intake pipe is cast in one piece. The method of fastening to the inlet valve is by lock-nut fitted with right and left threads. The grip control is operated by the right hand grip alone, and controls the spark advance, the electrical circuit and exhaust lift in one movement.

The wheel base is 1 inch longer than that of the 1905 model, being now 53 inches. The rear pulley is attached by 12 lugs and is of one piece construction. The equipment includes Corbin sulky front hub, Corbin or Morrow motor cycle rear hub, 2¼-inch Fisk single tube tires, or G & J. clinchers, Mesinger saddle with spring seat post, or Persons

The Year Book of the Trade

The annual January "Buyers' Guide" issue of the Journal has justly earned the title of the "Year Book of the Trade" because of the fact that it is a complete compendium of the market for the coming year. All the prominent concerns in the trade appreciate this and reserve their complete announcements for that issue. Any dealer, jobber, manufacturer or individual automobile owner who is interested in buying new cars, parts or accessories during the year cannot afford to miss having the January "Buyers' Guide Special" at hand to refer to when anything is wanted

This issue contains an unprecedented amount of information on the new things offered for the 1906 season, and the main feature of the book is a complete classified directory of the entire trade arranged in compact form as a buyers' reference. Single copies of this issue are 50c. each, but it is included in a regular yearly subscription at $1.00. Subscription blank will be found on page 338.

C. W. Blackman, formerly connected with the "Horseless Age," has resigned his position to take an interest in the Parish & Bingham Co., Cleveland, Ohio, of which he was appointed manager of sales.

Mohler & De Gress, 390 Webster Avenue, Long Island City, N. Y., have sold their plant to F. A. Seitz, who will continue the business under the style of F. A. Seitz & Co., successors to Mohler & De Gress. This concern makes gasoline engines and parts for automobile repairs.

"Ever Ready" Starter, described in our last issue, are located at 304 Hudson St., instead of 307, as was stated. This company, which is controlled by officers of the American Electrical Novelty and Mfg. Co. will probably distribute the "Ever Ready" products to the automobile trade.

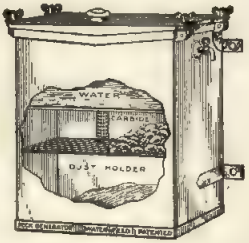
PECK PILOT LAMPS

ARE the strongest and most powerful that can be put on a car. We guarantee satisfaction to the man who insists on a **PECK EQUIPMENT.**

THE PECK GENERATOR

has won a National reputation. Simple—Easy to care for—Ready for use at all times. One charge will supply 2 lamps for three nights. It has no equal on the American market.

Catalogue and prices on request.



The Scoville & Peck Co.
NEW HAVEN, CONN.

The 1906 Yale-California

A Triumph in Motorcycle Building

It has always been our aim to produce the **BEST.** We thought we had succeeded fairly well with our 1905 model, but by careful study and experiment we discovered many points that were capable of improvement.

The 1906 model, therefore, will be distinguished by the following features:

Frame,—designed with bottom rail dropped lower in a graceful curve, thus allowing the motor to be carried lower.

Motor,—not inclined so much as in other models. Constructed with the utmost care; has aluminum crank case and improved bearings, better gasoline tank and better carburetor.

Spring Fork,—is retained, but truss construction is eliminated by the use of a quadruple fork Crown.

Flat Belt Drive.

Finish,—Yale Blue enamel, with full nickeled tank.

Weight,—a trifle over one hundred pounds, all on.

Consolidated Manufacturing Co. TOLEDO, OHIO : :

AUTOMOBILE BRAND ALUMINUM CASTINGS

THE WORLD'S STANDARD BRAND

We are also producers of phosphor-bronze gear and phosphor-bronze bearing castings, especially adapted for automobile and motor boat construction.

LIGHT MFG. & FOUNDRY CO.

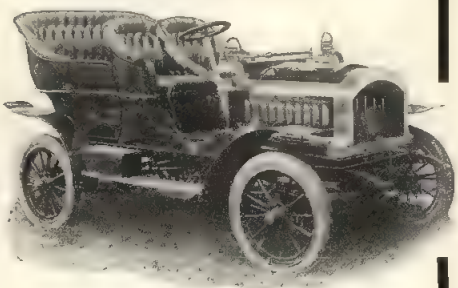
509 QUEEN STREET POTTSTOWN, PA.

Zent

"The Air-Cooler That Cools"

THE 1906 ZENT

will fully meet the demand for a simple, practical and efficient 4 Cyl. air-cooled car.



Years of experimenting and use have proved that the **ZENT** system of air-cooling, (tube radiation,) is more effective than any other, and **we guarantee the motor to keep as cool as a water-cooled engine.**

No expense has been spared in the construction and finish of the **ZENT**, and the 1906 model is one of the most beautiful, as well as powerful and satisfactory, cars on the market. It will prove a money-maker for the dealer. Arrange now for the agency.

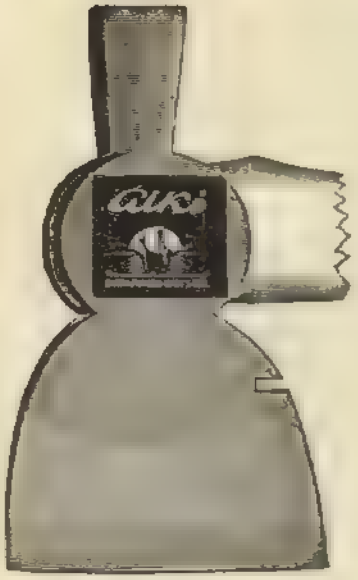
Write for complete description

ZENT AUTOMOBILE CO.,

Bellefontaine, Ohio.

Alki Hatchets

Extra Quality Cast Steel, Polished Head and Bit, Gold Bronzed



Shingling

No.	Per Doz.
1—Width Cut 3½ in.	$ 8 00
2—Width Cut 3⅞ in.	8 50

Claw.

No	Per Doz.
1—Width Cut 3½ in	$ 9 00
2—Width Cut 3⅞ in.	9 50

Half

No.	Per Doz.
1—Width Cut 3½ in.	$ 8.50
2—Width Cut 3⅞ in.	9.00

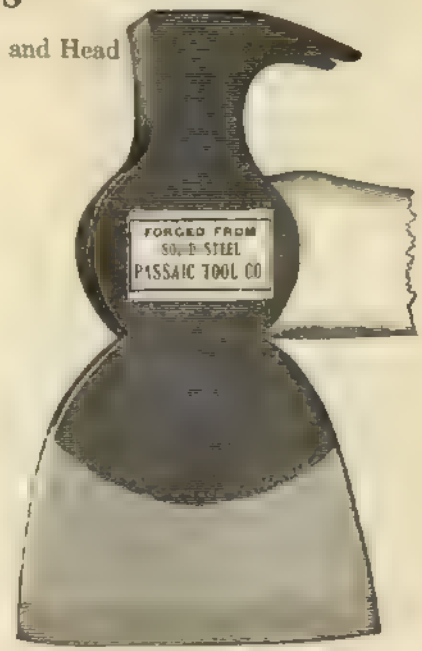
Broad

No.	Per Doz.
2—Single Bevel, Cut 4½ in.	$11.50
3—Single Bevel, Cut 5 in.	13.00
4—Single Bevel, Cut 5½ in.	14.50

One-Half Dozen in a Box

Passaic Hatchets

Solid Steel, Fully Tempered, Polished Bit and Head

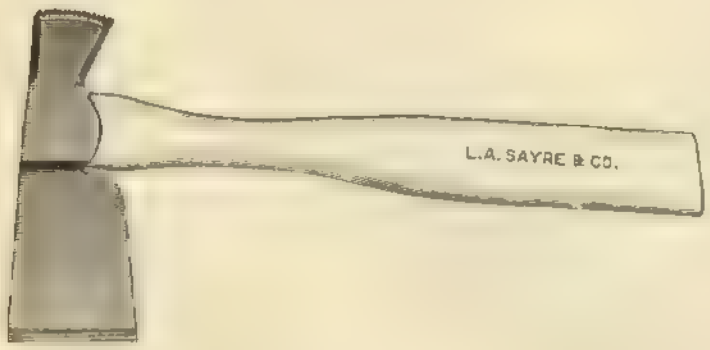


No.	Shingling	Per Doz.
1	Width Cut 3½ in.	$ 7.00
2	Width Cut 3⅜ in.	7.50

No.	Claw	Per Doz.
1	Width Cut 3½ in.	$ 8.00
2	Width Cut 3⅜ in.	8.50

One-Half Dozen in a Box

Box Hatchets



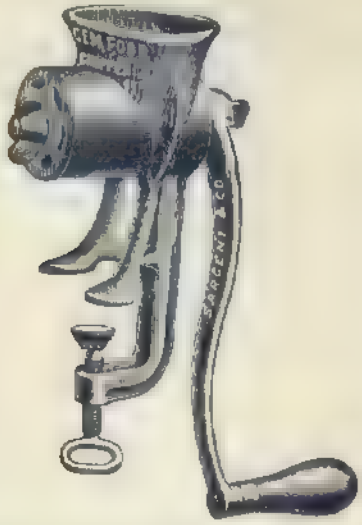
No.		Per Doz
400	Oval Head, Fine Score, Best Crucible Steel, Weight 12 oz.	$18.00
401	Flat Head, Regular Score, Solid Tool Steel, Weight 12 oz.	12.00

One-Half Dozen in a Box

Shingling Hatchets

No.		Per Doz.
44	Sayers, with Positive Gauge, Chicago Pattern, 81 Points, Weight 16 oz.	$27.00

GEM FOOD CHOPPERS.



The Gem is the best food chopper made that we guarantee because it has been demonstrated by actual use in many kitchens. It is a first-class meat cutter, that actually cuts raw meat and cooked meat, cuts it in pieces of uniform size as desired, cuts it quickly and easily, better than anything else ever made. It is a food chopper, too, that chops all kinds of vegetables, all kinds of fruit, crackers, bread, eggs, cheese, nuts, raisins, figs, in fact everything that has to be chopped. It takes the place of chopping bowl and knife, and relieves the housekeeper of much work; saves time, and is altogether a great kitchen convenience.

No. 20.	small,	capacity per minute,	2	pounds	.	.	.	Mfrs. price, per doz.,	$33.00	Our net price, each,	$1.25
" 22.	medium	"	"	"	2½	"	.	.	.	"	"	"	"	37.00	"	"	"	"	1.75
" 24.	large	"	"	"	3	"	.	.	.	"	"	"	"	50.00	"	"	"	"	2.25
Stuffing attachments for No. 22 and 24										.	.	.	"	"	"	"	5.00	"	"	"	"	.35
Nut Butter																						Included in price of choppers																		

MEAT JUICE PRESSES.

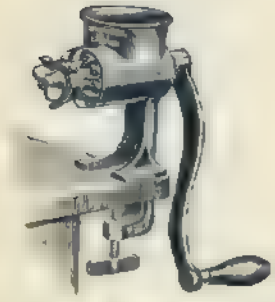
"BEEVERS"
75 MARKET ST.
PORTS. N. H.

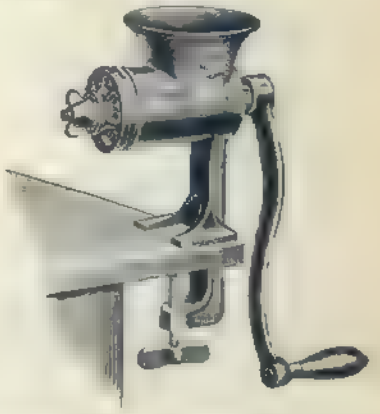
The most admirable results have been obtained by the use of meat juice in extreme illness. It is very valuable in the treatment of infants, or where, in young or old, there is impairment of disgestive powers.

Physicians are so generally prescribing meat juice that a mechanical device for quickly and easily extracting it is a necessity. We keep in stock a full line of meat juice presses. Pure, fresh meat juice, obtained by pressure, is exceedingly valuable as a nourishment for the sick. No other nourishment is so easily assimilated. Very delicate children appropriate it when they cannot digest milk. Typhoid, pneumonia and consumptive patients take it in generous quantities.

No. 11	For infants	Mfrs. price, per doz.,	$7.80	Our net price, each,	$0.75
" 10	"	" " "	12.00	" "	1.00
" 20	Family size, small	" " "	18.00	" "	1.50
" 28	" " with clamp	" " "	24.00	" "	2.00
" 38	" " large	" " "	42.00	" "	3.50
" 26	" small stand	" " "	24.00	" "	2.00
" 6	" large "	" " "	42.00	" "	3.50
" 4	Hospital small "	" " "	96.00	" "	8.00
" 5	" large " "	" " "	156.00	" "	13.00

THE UNIVERSAL FOOD CHOPPER





Chops all kinds of meat, raw or cooked, and all kinds of fruits and vegetables: in fact, everything that is ordinarily chopped in a chopping bowl, into clean-cut, uniform pieces, fine or coarse as wanted, without squeezing or mashing, and with great rapidity.

The principle upon which it is constructed differs from all other choppers, in that the article to be chopped is not squeezed through round holes, but is instantly carried through to the cutting point in practically its original condition, and is there met and cut by the revolving knives.

It is self-cleaning, self-sharpening, and so simple in construction that a child can take it apart and put it together.

A simple, economical, durable machine, that will be used every day in the kitchen.

No housekeeper, having ever seen it work, will be without it.

No. 0,	Small family size,	Chops	1½	lb. meat per minute.					Mfrs. price, per doz.,				$21.60	Our net price, each.			$1.25
" 1,	Medium "	"	2	"	"	"	"		"	"	"	"	24.00	"	"	"	1.50
" 2,	Large "	"	2½	"	"	"	"		"	"	"	"	27.00	"	"	"	2.00
" 3,	Hotel, restaurant,	"	4	"	"	"	"		"	"	"	"	36.00	"	"	"	2.50
Stuffing attachments for No. 2 and 3 choppers only									"	"	"	"	4.50	"	"	"	.35

Laib Co.
1144
Louisville Ky

ANEMOMETERS.

WITH ONE MINUTE SAND GLASS.

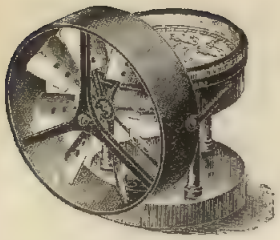


FIG. 3244.

FIG. 3245.

Diameter of Vane.....inches	2½	2½	2½	2½
Register.....feet	1000	1000	1000	1000
Price.....each	19 50	21.75	*23.50	*25 75

*With one minute Sand Glass attached to disconnector in such a manner that it starts and stops the mechanism.

FIG. 3246.

Diameter, Inches.	Register, Feet.	Price, Each.
3	1000	20.25
4	1000	19.00
4	100000	21.00
6	1000	21.00
6	10000000	33.00

WHITE.

No. 604. ALEXIS. List, Each, $22.50
Eight-Day, Half-Hour Gong Strike.
Height, 9¾ inches. Width, 12¾ inches.
Arabic or Roman Dial, 5 inches.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial.

ONYX.

No. 605. ARDENA. List, Each, $25.00
Eight Day, Half-Hour Gong Strike
Height, 10½ inches. Width, 11¼ inches.
Arabic or Roman Dial, 4½ inches.
French or Rococo Sash, Beveled Glass, Porcelain Dial.

No. 606. ASTOR. List, Each, $22.00
Eight Day, Half-Hour Gong Strike.
Height, 9 inches. Width, 10 inches.
Arabic or Roman Dial, 5 inches.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial.

No. 607. ANSONIA. List, Each, $35.00
Eight-Day, Half Hour Gong Strike.
Height, 11½ inches. Width, 14½ inches.
Arabic or Roman Dial, 5 inches.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial.

ROYAL BONN PORCELAIN.

ANSONIA MOVEMENTS.

Old Dutch Scenes in Rich Coloring.

No. 698. LA MINE. List, Each $18.75
Eight Day, Half Hour Gong Strike
Height 14½ in. Dial 5 in. Width 11¾ in.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial
Arabic or Roman
Holland Women Decoration on Brown, Green, Ruby or Blue Tints

No. 699. LA RIVIERE. List, Each, $18.75
Eight Day, Half Hour Gong Strike
Height 12½ in. Dial 5 in. Width, 14½ in.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial
Arabic or Roman
Holland Women Decoration on Brown, Green, Ruby or Blue Tints

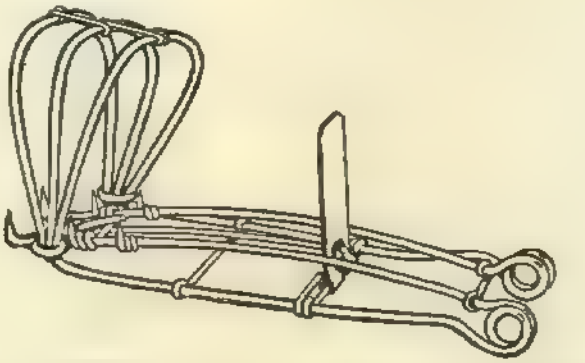
No. 700. LA TOSCA. List, Each, $18.75
Eight-Day, Half Hour Gong Strike
Height, 14½ in. Dial, 5 in. Width, 10 in.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial
Arabic or Roman
Holland Women Decoration on Brown, Green, Ruby or Blue Tints

No. 701. LA LAYON. List, Each, $20.25
Eight Day, Half-Hour Gong Strike
Height, 14½ in. Dial, 5 in. Width, 15 in.
French or Rococo Sash, Beveled Glass, Porcelain Visible Escapement Dial
Arabic or Roman
Holland Women Decoration on Brown, Green, Ruby or Blue Tints

Gopher Traps.

Code Cardamoth. Per Dozen
No. 3—C. V. Steel Wire, 1 Small Ring, 4 Prong . . . $3.00
Weight, 2¼ lbs. Per Dozen.

Code Cardamon. Per Dozen
No. 4—C. V. Steel Wire, 1 Large Ring, 4 Prong. . . . 3.00
Weight, 2¾ lbs. Per Dozen.



Code Cardamus. Per Dozen
No. 13—C. V. Steel Wire, 2 Ring . . . $3.00
Weight, 3½ lbs. Per Dozen.

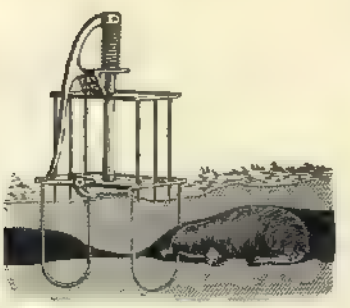
Code Cardamos
No. 14—C. V. Steel Wire, 3 Ring . . . 3.00
Weight, 4 lbs. Per Dozen.

Code Cardecu. Per Dozen
No. 10—Jolly, Steel Spring Wire, Coppered, ... $2.00
Weight, 2 lbs. Per Dozen.

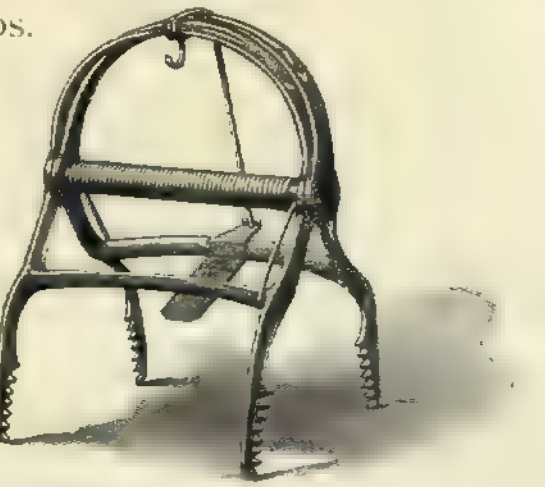
Code Cardeiras Per Dozen
No. 7—Ward's Novelty, ... $3.00
Weight, 3 lbs. Per Dozen.

Code Cardenales Per Dozen
No. 5—Macabee, ... $3.00
Weight, 3 lbs. Per Dozen.

Mole Traps.

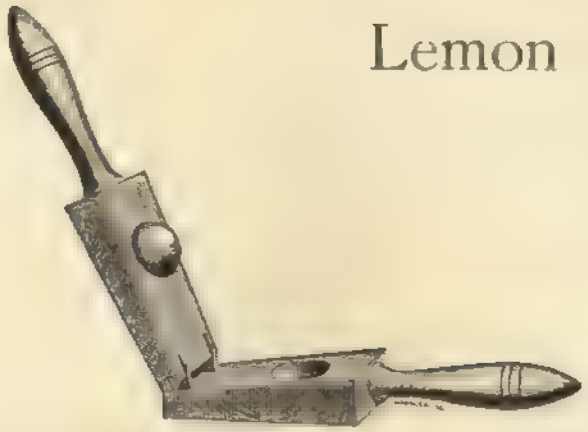


Code Cardimonis. Per Dozen
Enterprise, Galvanized Steel Frame and Prongs, ... $18.00
Weight, 52 lbs. Per Dozen.



Code Cardinatos. Per Dozen
Out-o-Sight, Japanned Iron Frame, Coppered Steel Spring, ... $7.50
Weight, 24 lbs. Per Dozen

Lemon Squeezers.



Code Carpiscilis. Per Dozen
No. 1—Wood Ball, Maple, ... $1 80

Weight, 8½ lbs. Per Dozen.

Code Carpiscium. Per Dozen
No. 2—Picnic, Porcelain Ball and Bowl Maple Frame, . . . $3.00

Weight, 8½ lbs. Per Dozen.

BAKER & HAMILTON

Code Carpodete. Per Dozen
No. 502—Golden Gate, Maple, Brass Trimmings, ... $18.00
Code Carpodagia.
No. 501—Golden Gate, Maple, Silver Trimmings, ... 30 00

Weight, 10 lbs. Per Dozen.
One Dozen in a Box.

Code Carpomanie. Per Dozen
No. 11—Standard 7½ In. Long, Tinned $2.00

Weight, 24 lbs. Per Dozen.
One Dozen in a Box.

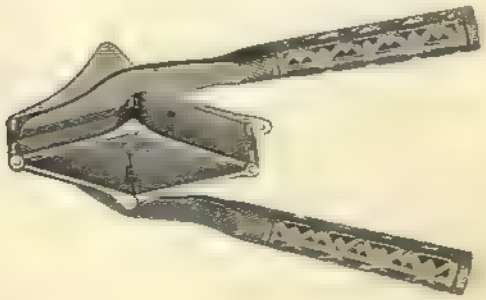
Code Carpole ae
No. 4—Boss, Light Pattern 8½ In. Long $2 50
Code Carpologia.
No. 2—Boss, Heavy Pattern, 9 In. Long, 3 00

Weight, 10 lbs. Per Dozen.
No. 4, One Dozen; No. 2, Half Dozen in a Box

Code Carpophore. Per Dozen
No. 18—American Queen Combined Juice Extractor and Lemon Squeezer, Tinned Cup, Japanned Frame, . $4.00
Half Dozen in a Box.

Code Carpottosi. Per Dozen
No. 10—Drum Porcelain Cup, Japanned Handles, ... $14.00
Code Carpeero.
No. 12—Drum, Porcelain Cup, Nickel Plated Handles, ... 20.00
One-Twelfth Dozen in a Box

Lemon Squeezers.



	Per Dozen
No. 11—Little Giant, Japanned	$8.00
No. 22—Little Giant, Tinned,	9.00

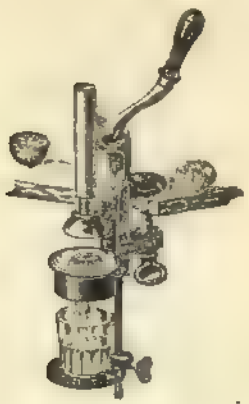
Half Dozen in a Box

No. 1—Manny, Glass, Lemon Juice Extractors, ... Per Dozen $1.00

Half Dozen in a Box

No. 2—Manny, Glass, Orange Juice Extractors, ... Per Dozen $2.00

Half Dozen in a Box

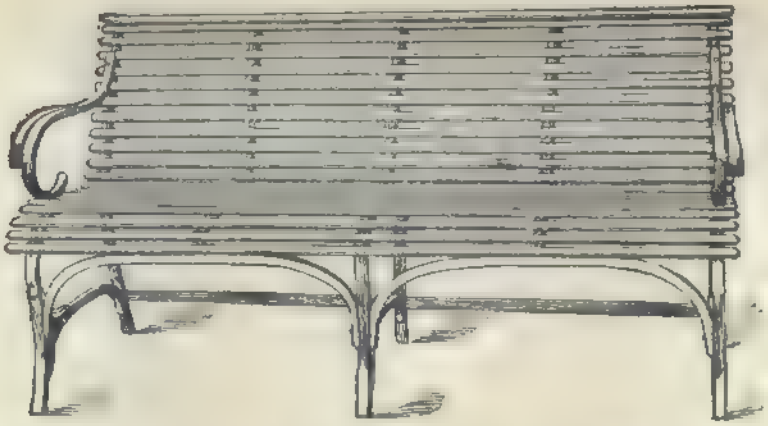


Rapid, Nickel Plated, Cup and Cone are Covered with Sheet Aluminum Metal which is not Affected by Acid of Lemon, Adjustable Glass Holder, ... Each $5.50

One in a Box

	Each
No. 15—Sampson, Japanned Frame, Tinned Bowl and Plunger,	$2.00
No. 20—Sampson, Nickel Plated Frame, Tinned Bowl and Plunger,	3.00

RUSTIC PORCH OR LAWN SETTEE.



The material used in this settee is selected hard wood. The legs are all bent work, thoroughly bolted and braced. Seat and back slats are round, with nicely rounded ends. Entire seat neatly painted in bright vermilion or dark green and tastefully striped.

No. 60, 4 feet long, 4 legs	Weight, about 15 lbs. each	Mfrs. price, each, $6.00	Our net price, each, $4.50
" 61, 5 " " 6 "	" " 20 "	" " " 7.00	" " " " 5.00
" 62, 6 " " 6 "	" " 25 " "	" " " 8.00	" " " " 5.50

AUTOMATIC LAWN SWINGS.

These swings are perfectly automatic, and furnish a delightful and healthful exercise for persons of all ages, as the smallest child can operate them with absolute ease and safety. As a promoter of health, strength and vitality, this swing has no equal, as with it either gentle or vigorous exercise may be taken at will.

No. 2 Fairfield Swings (first quality) are made from selected hard wood nicely finished. They are very durable and highly ornamental.

No. 6 Favorite Swings (second quality) are offered to meet the demand for a cheaper swing than the Fairfield. They have the same general appearance although the lumber is not so carefully selected. The Double Swings are built with the view of sustaining a greater weight, and are admirably adapted for parks, picnic grounds, etc.

No. 2 Fairfield, Single, first quality	Mfrs. price, per doz., $60.00	Our net price, each, $4.50
" 6 Favorite, " second quality	" " " " 54.00	" " " " 4.00
" 5 Fairfield, Double, light	" " " " 75.00	" " " " 6.00
" 7 " " first quality, heavy	" " " " 90.00	" " " " 7.00

Awnings for the above swings furnished to order only.

"KEEP OFF THE GRASS" SIGNS.

Cast iron, painted green, bronzed letters.

Mfrs. price, per dozen . . . . . $9.00 Our net price, each $0.60

Q. P. WOVEN HAMMOCKS.

The Q. P. Hammocks contain the largest amount of first-class stock of any in the market, being made of heavy cotton yarn. All hammocks have our combined hook and ring.

Hammocks, Quarter Color with Valance and Adjustable Pillow, Bent Spreaders in Both Ends.

Grade 3, size of body, 78 in., width, 45 in. . . . Mfrs. price, per doz., $42.50 Our net price, each, $3.15
" 2, " " " 84 " " 48 " . . . " " " " 59.50 " " " " 4.35

White Hammocks with Bent Spreaders in Both Ends.

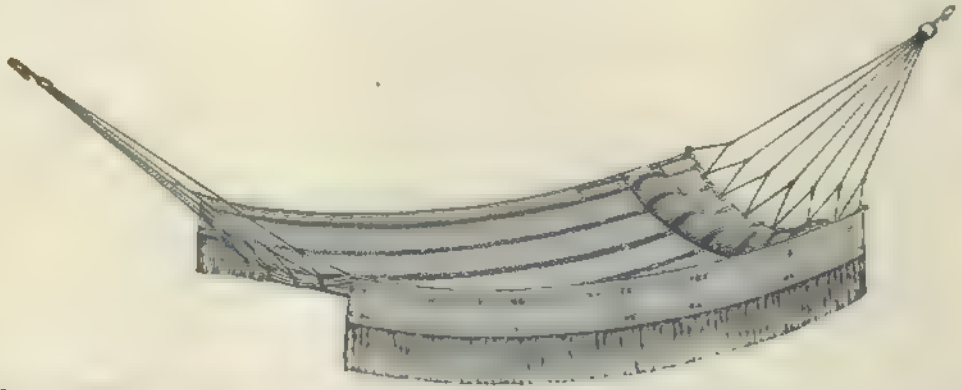
Grade M, size of body, 84 in., width, 45 in., ... Mfrs. price, per doz., $26.50 Our net price, each, $1.90
" O, " " " 45 " . . . . " " " 20.50 " " " 1.50

Hammocks of Full Fast Colors, with Bent Spreaders in Both Ends, Adjustable Pillow and Valances.

Grade W, size of body, 96 in., width, 58 in., ... Mfrs. price, per doz., $75.00 Our net price, each, $5.50
" Y, " " " 78 " " 45 " . . . . " " " 45.00 " " " 3.25

Hammocks, Plain White, with Bent Spreaders in Both Ends, Adjustable Pillow and Valances.

Grade No. 15, size of body, 96 in., width, 58 in., ... Mfrs. price, per doz., $56.00, Our net price, each, $4.10
" " 17, " " " 78 " " 45 " . . . " " " 35.00, " " " 2.60



Quarter Color, with Bent Spreaders in Both Ends, with Valance and Adjustable Pillow.

Grade 4, ¼ color, size of body, 72 x 59 inches. Mfrs. price, per doz. . $30.00 Our net price, each . $2.25

Hammocks, Plain White, Without Spreaders.

Grade C, size of body, 78 in., width, 45 in. . . . Mfrs. price, per doz., $20.50 Our net price, each, $1.50
" B, " " " 84 " " 48 " . . . " " " 26.50 " " " 1.90

Hammocks of Full Fast Colors, with Bent Spreaders in Both Ends.

Grade S, size of body, 84 in., width, 48 in., ... Mfrs. price, per doz., $34.00 Our net price, each, $2.50
" T, " " " 78 " " 45 " . . . . " " " 27.00 " " " 1.90

FLEXIBLE FLYER SLEDS.

Coasting is by common consent one of the best of all sports. It is hard to find better fun than flying at breathless speed down a smooth hill covered with swift sleds; and he is a happy boy who rides the champion sled, "the fastest on the hill." The one great drawback of coasting with the ordinary old style sled has always been the steering, or the trying to steer, until just recently when a grown-up boy invented the Flexible Flyer, which has light runners of T-shaped spring steel, making them very strong vertically, but flexible sidewise. This enables one to guide the sled by putting the feet on a steering bar, by which the runners may be curved and the sled steered to the right or left, as desired. The steering, thus made perfect and easy, is the great charm of the coaster; and as there is no drag or friction, the Flexible Flyers then easily go ahead of any other coasters made. These sleds cost a little more than the old style in the first place; but remember that one of these lasts as long as three old-fashioned wooden sleds; and don't let the treasurer forget that it saves shoes enough to pay for itself the first season.

Flexible Flyer No. 1.

Length, 38 in. Height, 6 in. Width, 12 in. Weight, 6½ lbs.

Mfrs. price, each . . . . . $2.50 Our net price, each $2.50

Flexible Flyer No. 2.

Length, 40 in. Height, 6¼ in. Width, 13 in. Weight, 7¾ lbs.

Mfrs. price, each . . . . . $3.00 Our net price, each $3.00

Flexible Flyer No. 3.

Length, 44 in. Height, 7 in. Width, 14 in. Weight, 11¼ lbs.

Mfrs. price, each . . . . . $3.75 Our net price, each $3.75

Flexible Flyer No. 4.

Length, 50 in. Height, 8 in. Width, 16 in. Weight, 13¼ lbs.

Mfrs. price, with foot rests, each . . . . . $4.50 Our net price, with foot rests, each $4.50

Flexible Flyer No. 5.

Length, 62 in. Height, 8 in. Width, 16 in. Weight, 17 lbs.

Mfrs. price, with foot rests, each . . . . . $6.00 Our net price, with foot rests, each $6.00

Flexible Flyer No. 6.

Length, 96 in. Height, 8 in. Width, 16 in. Weight, 25 lbs.

Mfrs. price, with foot rests, each . . . . . $10.00 Our net price, with foot rests, each $10.00

PASTRY BOARDS.

		Mfrs. price.	Our net price.
Spruce,	15x20 in.	per doz., $5.00	each, $0.30
"	17x23 "	" 5.60	" .35
"	19x26 "	" 6.20	" .40
Whitewood,	16x20 "	" 5.60	" .35
"	18x24 "	" 6.85	" .45
Whitewood,	20x26 in.	per doz., $8.00	each, $0.50
"	16x22 " 3 side cleats	" 6.20	" .40
"	18x24 " "	" 7.40	" .50
"	20x26 " "	" 8.60	" .60

Packed ½ doz. in bundle.

BREAD BOARDS.

11 in. hardwood	Mfrs. price, per doz., $5.00	Our net price, each, $0.25
20 " "	" " 2.00	" " .15

Packed ½ doz. in bundle.

ROLLING PINS.

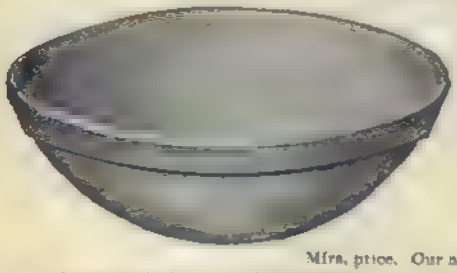
Revolving handle.

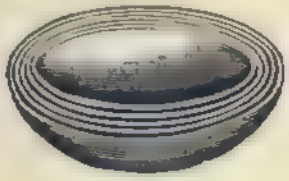
Creased.

		Mfrs. price.	Our net price.
10 in	Revolving handle, stained, per doz.,	$0.90	each, $0.05
12 X	" " " " "	1.80	" .10
12 XX	Revolving handles, cherry, per doz.,	$2.50	each, $0.15
7 in.	Creased	" 1.80	" .10

Packed 1 doz. in box.

CHOPPING BOWLS.





Nested.

		Mfrs. price.	Our net price.
16 in., 11 in. diam., plain hardwood, per doz.,	$1.10	each, $0.10
25 " 13 " " " " "	2.30	" .15
35 " 15 " " " " "	3.50	" .20
46 " 17 " " " " "	5.00	" .30
58 " 19 " " " " "	6.85	" .40
70 " 21 " " " " "	7.40	" .45
81 " 23 " " " " "	8.60	" .55
102 " 25 " " " " "	10.40	" .70
11 in. diam., [W] Paraffined	per doz., $0.90	each, $0.10
13 " " " "	" 1.50	" .15
15 " " " "	" 3.00	" .25
17 " " " "	" 5.00	" .35
19 " " " "	" 7.00	" .60
22 " " " "	" 9.00	" .85

Packed 1 doz. in crate.

IMPROVED SQUARE CHOPPING TRAYS.

		Mfrs. price.	Our net price.
No. 0.	Best quality, packed ½ doz. in crate	per doz., $5.60	each, $0.35
" 1.	" " " " "	" 6.80	" .40
" 2.	" " " " "	" 8.00	" .50
" 3.	" " " " "	" 9.20	" .60
" 4.	" " " " "	" 11.00	" 1.00
Hand made, hardwood, assorted sizes, packed ½ doz. in crate		7.00	" .35 to .55
" " extra large, " " "		" 11.00	" .75

AUTO

PERFECTION

THE
Von Schwarz
ACETYLENE BURNERS

None genuine without J. V. S. on Tip and Pillar

Some Advantages

They are recognized Standard Burners the world over.

Accurate in Consumption. Free from carbonization and other troubles, and they are **Licensed** under Patent 593942, August 31, 1897. This patent has been adjudicated by the U. S. Court of Appeal and IS VALID.

We advertise not only our burners, but also those firms who confine themselves to equip their lamps with **Licensed Burners**

Is there any reason why you should equip your lamps with cheap infringing imitations? PROTECT YOUR CUSTOMERS AS WE DO. PROTECT US!

For Information and Prices apply to

M. Kirchberger & Co.
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50 Warren St. New York

"The Breech-Block Plug"

The Plug with a Handle

To take out your watch or take out a Breech-Block, requires just the same time, same tools, same effort, and one twist cleans the entire porcelain to the whiteness of snow.

To remove the porcelain only, loosen the clamping nut and it drops out of its holder, and the gaskets of copper drop with it. No digging.

It is nickeled inside and out. Highly polished and rust proof. Sparks between two adjustable points and not between one point and the shell. Its points are protected

Porcelains are hand turned and so perfectly glazed that soot cannot stick to them. Their threads are cut to perfection and every particle of the idea of cheapness is left out of them

Can you think of a way to improve them regardless of cost?

Postpaid, 32. Booklet

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2003 West Ave, Chicago Heights, U. S. A.

Turn It Upside Down

and it won't spill

The only non liquid storage battery in the world. Write for descriptive pamphlet and dealers' prices,

G. & C. DRY BATTERY MFG. CO.
54-56 West 3rd Street New York City

ARMAC THE MOTOR-CYCLE THAT "ALWAYS GOES"

PUSHING AHEAD

The steadily increasing demand for the ever reliable **ARMAC** has again forced us to increase our facilities and we are now prepared to fill orders for *ANYTHING* in the motor cycle line, from our new plant.

A 2500 mile cross-country ride with 200 lb rider up, and not *a breakdown* is latest Armac achievement.

A Motor Cycle for Practical Purposes

Agents wanted in all open territory.

ARMAC MOTOR CO.
Cor. Sheldon and Carroll Ave.
CHICAGO, ILL.

1906 Pierce Cars

The George N. Pierce Company, Buffalo, N. Y., will continue to make their well-known 8 H. P. Stanhope Runabout, but intend devoting most of their energies to the manufacture of their four-cylinder, 28-32 H. P. cars described December, 1904, and a new 40-45 H. P. model. The former has cylinders 4¼ ins. diameter x 4¾ ins. stroke; weight of car complete about 2600 pounds. The latter car has cylinders 5 ins. in diameter x 5½ ins. stroke; weight of car complete, 3200 pounds. The following description of this latter car applies generally to the other.

The Pierce 1906 28-32 H. P. 4-cylinder straight tonneau touring car with cape top and folding glass front. Price without top, $4000 00.

NOTABLE CHANGES.

Among the notable changes in Pierce construction are the new direct drive transmission, gear interlocking device, heating jacket on carburetor and auxiliary air inlet, change in oil tank to secure equal distribution of oil on any incline, exhaust pressure in fuel tank, I-beam front axle, larger springs and new design cast aluminum body, all of which are described in detail.

THE UNDERFRAME.

This is of pressed steel construction of from .20 to .30 carbon. It is 4½ ins. deep at the center and tapers to 2⅞ ins. at the ends. The flanges are 1⅝ ins. wide and the thickness of metal is 3-16 ins. The three cross bars are of the same section as the side bars, which they connect, and to which they are riveted with large angle plates. In addition, there are special pressed steel end pieces that serve not only to fill in the open channel where these extend beyond the end cross bars, but they very materially stiffen these otherwise rather weak points of the frame. Two of the cross bars are located at the front and rear of the frame respectively, and the third one midway between these and two longitudinal steel angle bars are riveted to the forward and center cross bars, forming a sub-frame for supporting the engine and transmission gear case.

Semi-elliptic springs of extra length are used, the front springs being 40 ins. long and the rear springs 53 ins. The front springs are shackled at their rear end, the shackles being above the spring so as to work under compression instead of tension. This arrangement is adopted to prevent the possibility of the spring flipping under the shackles and thereby endangering the steering. The rear springs are positively connected to brackets in front and shackled at the rear ends. Rubber buffers are provided to limit the deflection of the springs.

The bodies are of a new design, as shown in the reproductions of photographs. They are made almost altogether of cast aluminum, the experience of this firm having shown them that this is the best possible way of making an automobile body that will stand the severe duty that they have to undergo. The front seats are of the individual type. The side entrance doors are extra wide. The rear seat is very ample for three passengers with abundance of leg room. Plenty of room is provided for carrying baggage and supplies. The dished front dash is made of cast aluminum with solid brass moulding and two mahogany cabinets are provided in it for carrying small articles. The wheel base is 109 ins. The tread is standard.

The front axle is a one-piece drop forging of heavy I-beam section, as shown in the illustration, Fig 1. The axle, instead of having the usual drop in the center to clear the

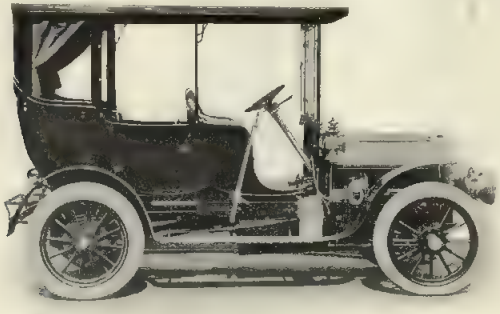
engine shaft, forms an inverted arch of very large radius, thus avoiding any sharp bends that would tend to weaken it. The steering knuckles are steel forgings of liberal dimensions. As seen by the illustration, the steering pivots are of the Lemoine type and are bushed with phosphor bronze. The spindles of the front axles made of nickel steel, are fitted with hardened and ground tool steel cones, the front wheels running on ball bearings. The spindles are bolted and the steering cranks are keyed, bolted and brazed to the steering knuckles.

A special type of ball joint is used for the steering rod connections with springs that effectually take up lost motion automatically.

Wood artillery wheels are used, 36 ins. in diameter, and fitted with 4½-in. detachable tires in front and 5 ins. on the rear.

shaft meshes with an intermediate gear directly above it, and the latter with the gears on the two cam shafts respectively. This arrangement does away with the large diameter gears otherwise necessary, thus reducing noise and admitting of enclosing the gears in a compact case. The pistons are made very light and with webs to strengthen the wrist pin lugs.

The crank shaft is a solid steel forging with all the bearings accurately ground. It is supported in three bearings ,which are provided with adjustable bronze bushes. All the crank bearings are entirely supported by the upper half of the crank casing and the lower half acts only as a dust cover and an oil well. When the latter is removed, free access is obtained to all the crank bearings for inspection and adjustment. The cam shaft



The Pierce 1906 40-45 H. P. 4-cylinder Victoria canopy top semi-enclosed body. Price, without top, $5000.00.

THE ENGINE.

This has four vertical cylinders, water cooled, with mechanically operated inlet valves. The cylinders are cast of iron, separate, and have a bore of 5 ins., and a stroke of 5½ ins. The water jacket, valve chambers and cylinder head all cast integral with the cylinder proper. The cylinders are cast flat on one side to permit of bringing the cylinders closer together. At the same time, a liberal water space is retained. Both sets of valves are the same size, 1 15-16 ins. diameter and are interchangeable. The caps over the valves are very easily taken out for inspecting and removing the valves by loosening the set screw, Fig. 2, by one-quarter turn. The cover nut is a loose fit in its thread and can be unscrewed by hand and then the cover lifted out, exposing the valve. The valves are operated by two sets of cams on separate cam shafts, both located within the crank chambers. The half speed pinion on the crank gears are located at the forward end of the engine outside the crank case and protected by a special oil tight cover bolted to the crank case

Lubrication is effected by means of a gear oil pump, as in last year's model. This pump draws the oil from the pit in the crank case and forces it into the reservoir, from whence is is led to each of the three crank shaft bearings. There is a removable wire gauze screen in each of these pipes. The crank shaft journal and the short arms of the crank are drilled through their centers, and the crank shaft is also provided with radial holes at the center of the journals so as to provide a passage for the oil from the main journal bearings to the crank pin bearings. The shape of the oil tank has been altered so that whether the car is going up hill or down, all the bearings get an equal amount of oil.

The commutator is of the roller type, and it is now placed on a vertical shaft between the third and fourth cylinders so as to be

readily accessible. The shaft is worked by a pair of bevel gears from the inlet cam shaft, as shown in Fig. 4. This makes a very neat arrangement

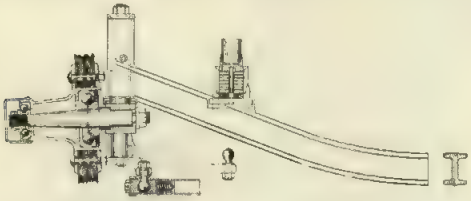


Fig. 1 The new Pierce I Beam front axle and ball bearing front hub.

The governor is of the centrifugal type, and in the 40-45 H. P. engine, it is placed on the crank shaft, as shown on Fig 3. This governor automatically controls the throttle valve leading from the carburetor to the engine inlet pipe. The lever that transmits the

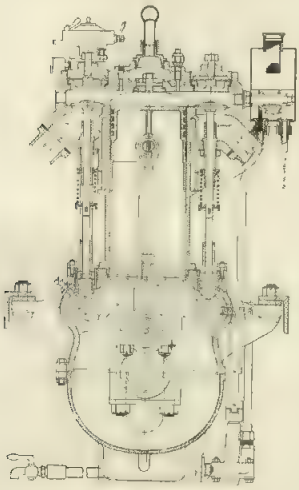


Fig. 2.—Cross section of Pierce 1906 40-45 H. P. engine.

motion of the sleeve on the governor to the throttle valve acts against a spring, the tension of which can be altered at will by the upper regulating lever on the steering column. Thus when the spring is compressed, the engine will run faster and when the spring tension is released the engine will run slower.

The water pump for the cooling system is of the rotary type. (See Fig. 5.) This gives a positive forced flow of water through the cylinder jackets. This pump in the case of the 40 to 45 H. P. engine is attached to the crank case, being positively driven by means of a gear meshing into the exhaust cam shaft gear wheel.

THE TRANSMISSION GEAR.

The transmission gear runs on Hess-Bright bearings and is of the direct drive on the high gear type (See Fig. 6), giving three forward speeds and one reverse. The engine flywheel is bored out to receive a cone clutch leather faced. It will be seen that when the clutch is in gear there is no thrust on any bearing. The clutch "A" is released by pressing on the clutch foot lever, which is connected to the collar "B," which is fitted with ball bearings, thus compressing the spring "C," the thrust of which is taken by the ball thrust bearing "D." On the end of the direct drive shaft "E" is a gear "H" with an extension upon which is a claw clutch "F" having two fingers which engage in slots in the hub of the friction clutch. This allows the friction clutch "A" to be moved along the extension "G" on which it rests when out of gear.

The gear "H," when in position shown in figure which illustrates the low gear in operation, is free to revolve upon the shaft "E." This gear has 20 teeth. It meshes with a gear "J" which has 40 teeth, keyed to the shaft "K" so that when the engine is running and the clutch is engaged, the shaft "K" will revolve at half the speed of the gear "H." Towards the other end of this shaft is keyed the gear "L." This has 18 teeth and it meshes with a gear "M" of 32 teeth, bolted to the sleeve "N," which has a square hole in it and can be made to slide upon the square shaft "E." This shaft, in the present case, will revolve 1.77 times less than the pinion "L," giving a reduction on the low gear of 3.54 times less than the engine speed. The gears "O" and "P" are equal and when the sleeve "N" is moved so that these are in mesh, the shaft "E" will be driven at the same speed as shaft "K," i. e., one-half the speed of the engine. This is the intermediate gear.

On the right hand face of the gear "O"

are four projections which fit into recesses in the left hand face of the gear "H" so that when the sleeve is moved so that these engage, the shaft "E" will revolve at the same speed as the engine. This gives the high gear, which is direct from the engine to the propeller shaft "S." Although on this speed, the shaft "K" is revolving, it must be observed that it is only running at half the speed of the engine, and being mounted on ball bearings, there is practically no loss of power. In practice, this shaft revolves perfectly silent. On the other end of the shaft "K" is keyed the gear "Q," which has 14 teeth. This meshes with a gear "R" below it. When the sleeve "N" is moved to the extreme left, the gear "M" then engages with "R." The shaft "E" thus revolves in the opposite direction, giving the reverse, which is 4.56 times less than the engine. It will be noticed that the collar that moves the sleeve "N" has ball bearings. The gears "H" and "I" are 6 pitch. The other gears are 5 pitch.

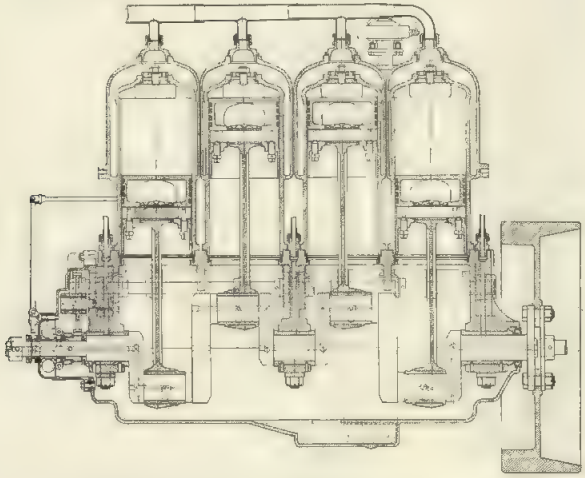


Fig. 3. Vertical section Pierce 40-45 H. P. 1906 engine, showing the new position of commutator between third and fourth cylinders.

As will be seen, the universal joint at the end of the transmission shaft "E" is entirely closed in, a screw "T" being provided for injecting oil and grease.

The type of ball joint shown at "U" is used wherever possible in cases where a rod has a direction of motion in more than one plane.

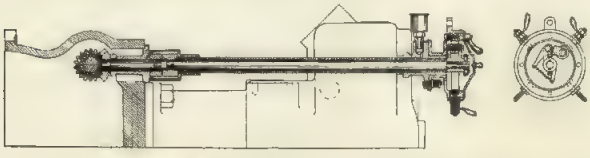


Fig. 4. Pierce commutator and commutator shaft.

THE CHAINLESS DRIVE

The car is provided with a live rear axle of bevel gear drive. At each end of the propeller shaft is a universal joint. One part of the rear universal joint has a square hole in it, and can slide upon the square portion

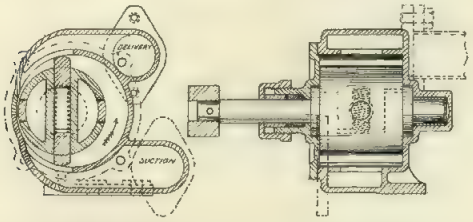


Fig. 5.—Pierce rotary circulating pump.

of the shaft, thus allowing of the shortening of the longitudinal shaft when the springs are depressed.

The differential gear is of the spur type, three pairs being used. These are enclosed together with the driving gear in a casing on the rear axle. The rear axle, made of nickel steel, is extra heavy and runs on large ball bearings. The thrust of the large bevel gear is taken by a separate ball bearing entirely independent of the driving axle bearings, so that it is impossible for the bevel gears to be drawn out of mesh by the wear and consequent adjustment of the driving axle bearings. These gears are hardened, and run in oil and grease.

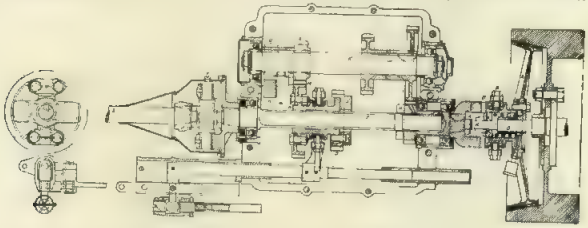


Fig. 6. The new Pierce direct drive transmission gear

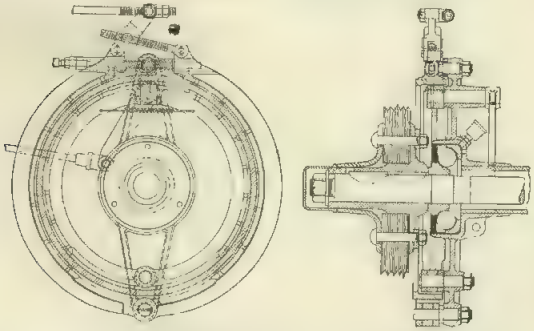


Fig. 7. Section of the brakes on Pierce 1906 40-45 H. P. car.

THE BRAKES.

(See Fig. 7.) Both inside and the outside of the brake drums on the rear wheel hubs are used for brakes. As the effective braking of a large car is of such vital importance, the Pierce Company has considered it necessary to have both the foot brake and the emergency hand brake operate on the rear wheel hubs, thus getting direct to the most effectual place for the brakes without going

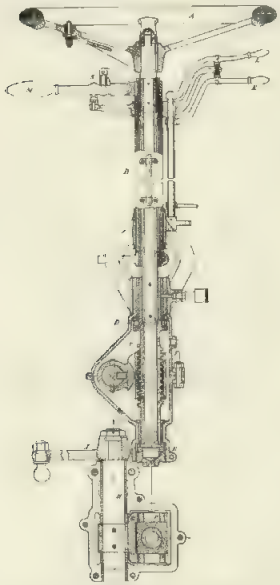


Fig. 6.—Sectional illustration of the steering post and connections of the Pierce 1906 40-45 H. P. Car

through the transmission gear. The brake drum is very large in diameter. The hand brake lever, which is on the right hand side of the car, can be locked in any position and operates on the external brake shoes. These are of steel, lined with bronze rubbing strips which can, when worn, be readily and cheaply replaced. These shoes are pivoted at their lower ends to a fixed support and their upper ends may be drawn together and the brake shoes applied by means of the toggle arrangement shown. A coiled spring normally keeps both brake shoes clear of the drum. A foot brake pedal operates on the internal brake shoes. These are also of steel with bronze linings. These shoes are pivoted at their lower ends, and a cam at the upper end forces them apart when the foot lever is depressed. A coiled spring normally keeps these shoes away from the interior of the drum. Both of these brakes operate equally in either direction, and the putting on of either brake first throws the friction clutch out of gear, thus disconnecting the engine

THE STEERING GEAR.

The car is steered by means of a large diameter hand wheel "A" (See Fig. 8) on the top of a considerably inclined tubular steering post "B." At the lower end of the shaft, to which the hand wheel is attached, is a multiple threaded screw "C" with special ball thrust bearings "D" and "E." This screw actuates a nut "F" with trunnions on it, upon which are die blocks that slide within the jaws of a forked lever "G" attached to the spindle "H." At the outer end of this spindle is the lever "J," which communicates the motion to the steering wheels. This

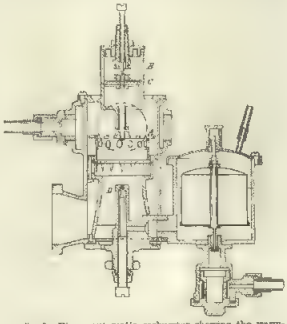


Fig. 9. Pierce automatic carburetor showing the warming jacket and new auxiliary air valve.

makes practically an irreversible steering gear, so that no road vibration is felt in the hand wheel. The cross steering rod is behind the front axle.

There are also mounted on the steering column two small handles "K" and "L" for operating the ignition timer and the governor respectively. These can be operated without taking the hands from the steering wheel. The gear change lever "M" is held in notches by means of a spring "S." On the left hand side of the steering wheel is a switch button, by means of which the engine can be stopped at a moment's notice.

GEAR INTERLOCKING DEVICE.

The car is provided with an interlocking device. This makes the stripping of the gears in shifting from one speed to another practically an impossibility, as it is not possible to move the gears until first the friction clutch is released by depressing the clutch pedal, and it is not possible to engage the

clutch until the two desired gears are in perfect mesh. This is accomplished by an extension "U," Fig. 6, of the gear shifting rod having holes in it for the different positions of the gears. Into these holes, drops a bolt connected by a bell crank lever to the clutch, so that when the clutch pedal is depressed the clutch is thrown out of engagement and the bolt is withdrawn. Then the gear shifting rod is free to be moved by means of the gear changing lever. Should the pressure on this clutch pedal be released before the required gears are fully in mesh, the bolt will bear upon the upper surface of the shifting rod and will hold the clutch out of engagement until the gears have been moved into full mesh. When one of the holes in the shifting rod comes opposite the bolt, the latter drops in and allows the clutch to be engaged, and it is impossible to move the gear changing lever until first this bolt is withdrawn by depressing the clutch pedal and releasing the clutch

About twenty gallons of gasoline are carried. This tank is under the front seat, and is arranged to have a pressure feed so that in mounting a steep hill, the gasoline will at all times flow to the carburetor. This pressure is taken from the exhaust and very special provision is made to insure that no dirt will get in, also that no excess pressure will accumulate in the tank.

A sheet aluminum cover protects the underside of the engine and transmission gear. Push pedals are provided for the clutch and foot brake, these being more powerful than those used last year, which were pressed down.

THE AUTOMATIC CARBURETOR.

Fig. 9 shows the latest form of this instrument. A patent has lately been granted for this arrangement. There is a jacket provided round the mixing chamber which is in communication with the exhaust gases so that in cold weather a portion of these gases is allowed to pass around the mixing chamber, and so prevent the vapor condensing on its way to the engine. The action of this carburetor is dependent upon the velocity of the air, due to the suction of the engine. When running slow, the auxiliary air valve "A" is on its seat, being kept there by the spring "B" above the dash pot piston "C." All the air then passes up the contracted passage, around the spray nozzle "D," so inducing a maximum supply of gasoline considering the slow velocity of the air. As soon, however, as the speed of the engine increases, the velocity of the incoming air also increases, and so raises the perforated auxiliary valve "A," overcoming the pressure of the spring "B." The auxiliary ports surrounding this valve are thus uncovered and a portion of the air supply to the engine goes through these, mixing with the vapor and air that has come up around the spray nozzle. By correctly proportioning these parts, the carburetor will take care of the varying speed of the engine automatically. The dash pot piston "C" is provided to prevent too sudden fluctuation of the auxiliary valve "A."

IGNITION OUTFIT

One 6-volt storage battery is supplied, and as a reserve a set of ten dry cells is provided. These are coupled up so as to give 7 volts.

Five individual spark coils are provided with vibrators on each. One is a spare coil, so that if any one in use gets out of order, it can be instantly replaced by the spare one while the engine is running.

Trade Items

Colonel Albert A. Pope has already entered a car for whatever contest is held in 1906 for the James Gordon Bennett cup.

Jay Dixon Chappell, president of the Woods Motor Vehicle Co., of Chicago, died recently of tonsilitis after a very short illness.

At the annual Stockholders' meeting of the Logan Construction Co., of Chillicothe, Ohio, a dividend of 10 per cent. was declared and 10 per cent. was also placed to the credit of a surplus fund. It was also voted to increase the capital stock to $150,000 and to erect a large addition to their factory. The building is now under way and will be 45 x 145 feet, three stories high. Additional machinery will be installed to increase their facilities and enable them to make almost every part of the car in their own factory.

Jess Draper, until recently connected with Peterson & Draper, of Chicago, has been made general sales manager of the Wayne Automobile Company, of Detroit, Mich. The past season has been a very successful one for the Wayne Automobile Company, and they feel warranted in arranging for a much larger output for 1906.

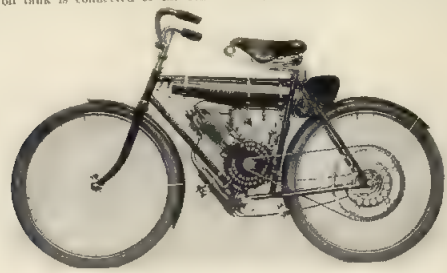
Thomas Midgley, of the Midgley Tubular Wheel Co., has been elected first vice-president of the Hartford Rubber Works Co., and will remove to Hartford, Conn., to take an active part in the affairs of the company, retaining, however, his interest in the tubular steel wheel business.

The King Mfg. Co., of Springfield, Ohio, has been absorbed by the King Mfg. & Garage Co., a new corporation with $20,000 capital, which, while continuing the manufacture of automobile tops as carried on by the old company, will also conduct a garage and job accessories. They have leased a 3-story, 50 x 200 feet brick and stone building which they have equipped in a most thorough manner for repairing, charging, etc.

Robert E. Ingersoll, who has been traveling salesman for the Pope Mfg. Co., of Hartford, Conn., for over five years, and George E. Smith, who has been chief correspondent of the automobile department for the same company for seven years, and who was formerly connected with Gormully & Jeffrey, of Chicago, have become recent acquisitions to the sales department of the Reo Motor Car Co., with headquarters at Lansing, Mich.

"Mayo" 1906 Motor Cycle

Mayo Damper Co., 355 Walnut St., Pottstown, Pa., are out with their 1906 motor cycle, the accompanying cut giving a very good idea of its general appearance. On the 1906 machine they use a 40-tooth compensating rear sprocket and a gear changing sprocket on the motor. The gasoline tank on the new machine is torpedo shaped and a cylindrical oil tank is connected to the rear



"Mayo" 1906 Motor Cycle

of the fuel tank, comprising together practically one tank. The motor is the Mayo 2 H. P. with exhaust lift and spark cut out combined with spark advance all controlled from the right hand grip. The grip control will work no matter what the position of the front wheel. The equipment includes Dunlop or G & J tires and a Persons improved saddle. The well-known Mayo carburetor is used.

Woodworth Tread Now Wire Retained

"The Woodworth Detachable Tire Tread," for use on automobile tires to prevent punctures, skidding and wear, now manufactured by the Leather Tires Goods Co., of Newton Upper Falls, Mass., has been very much

Fastening of Side Wires on new Woodworth Tread

improved since it was first put on the market by Woodworth Bros., of Newton Highlands, early this season. It now has a lining of felt, is made trough-shaped to conform to the shape of the tire, and is held by side wires passing through leather loops on each side, which are threaded on the ends and may be tightened with nuts, so as to draw down the cover tightly on the tire.

With this method of applying, as no cement is used it is a very easy matter to apply or remove the tread. If the tire is run flat or insufficiently inflated, the tread receives no injury, but simply works around the tire.

A great many of these treads have been run now from one to two thousand miles, and not one of them has ever been known to have been punctured

This company has also recently placed on the market an emergency strap for quickly reinforcing a punctured automobile tire shoe. It serves the same purpose on automobile tires as tire tape does on bicycle tires, It is made of chrome leather and is applied by buckling one end to a spoke, then winding the strap around the tire just as one would wind tire tape. It is said that this emergency strap will enable one to run a hundred miles on a bursted, rim-worn or badly cut tire-shoe. Price is $1 50. One size only is made, this size being suitable for all tires.

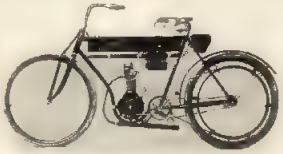
"C. & A." Automobile Houses

C. & A. Patented Building Construction Co, 170 Broadway, New York City, manufacture portable automobile and boat houses. These houses are composed of machine-made, interchangeable sections which join perfectly. They do not differ in architectural beauty and stability from specially designed, non-movable houses, while they possess the advantages of being portable and economical. Being thoroughly water and weather proof they are comfortable and entirely as useful as permanently located houses. They are substantially built of high grade materials and well finished

Hendee Mfg. Co.'s new factory on State St., Springfield, Mass., will very largely increase their facilities, and besides about four times last year's output of Indian motor cycles, they will during 1906 put out several hundred tri-cars and motor cycle parcel vans.

Reliance 1906 Motor Cycles

We show herewith the Reliance 1906 Standard Motor Cycle made by Reliance Motor Cycle Co., of Addison, N. Y., which will also be furnished with chain drive if desired. This machine is equipped with the same motor as the 1905 machine, rated at 1¾ horse power, but developing at least 2 horse power. The bore and stroke are respectively 2⅜ and 3-inch. The wheel base is increased 7 inches, being now 55 inches. Weight of 1906 machine, fully equipped, is 110 lbs., and it lists at $150.

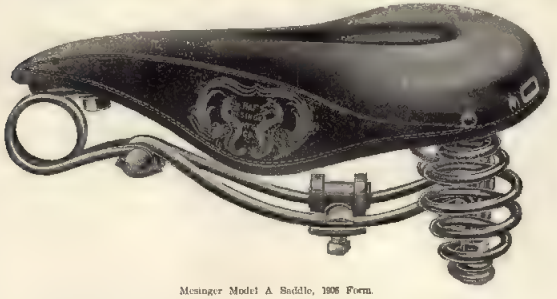


Reliance 1906 Motor Cycle.

Besides this model they will have a 2½ H. P. machine with the same frame but with G. & J. motor tires especially designed for touring. This model will weigh but 5 or 10 lbs. more than the standard machine and will be well adapted to traveling men's use, being capable of carrying 25 to 75 lbs. of samples. The 2½ H. P. machine lists at $175.

In addition to these two models they expect to bring out a 4 H. P. double cylinder machine using the same frame 13 ins. long and 9½ ins. wide. It has V-shaped stitching in the centre, which permanently holds the top in its original form. One of the best improvements is the torsion suspension front spring applied to the main spring with a side bolt, instead of a top bolt, which gives the front spring freer action and enables the rider to proceed at high speed over all obstructions, and takes the short, dangerous jars out of it. In the rear are two strong barrel-shape coil springs, which on a heavy bump telescope noiselessly together. A strong three-piece clamp, with two set screws, secures the saddle to the seat post.

The New England Motor Co., of Lowell, Mass., in order to obviate the delays occasioned by the necessity of charging ignition storage batteries, contemplate establishing depots in the principal cities for the interchange of a discharged battery for a charged one by the payment of a small fee. The batteries, to be interchanged, must be of the same series, that is to say, a 1906 battery will be exchanged for a 1906. A year-old battery may be exchanged for one of the current year by the payment of a small additional fee, and then it in its turn becomes interchangeable with other current-year batteries.



Mesinger Model A Saddle, 1906 Form.

Mesineger 1906 Saddles

The H. & F. Mesinger Mfg. Co., 1801-07 First Ave., New York, have improved their model A motor cycle saddle for 1906 and added a larger saddle, called Model A A. The 1906 Model A is shown herewith. It is the same in general appearance, but smaller than Model A A, and is padded with felt, while A A is padded with coil hair. Model A A is

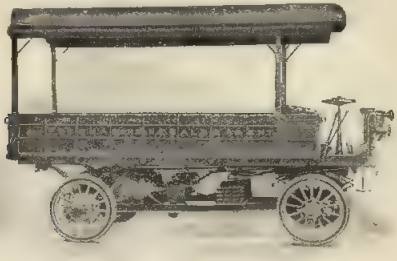
R. G. Koether, former purchasing agent of the Hyatt Roller Bearing Co., of Harrison, N. J., has left the purchasing department to become assistant sales manager of that concern.

The Atlas 1906, Model B, 3-Ton Truck

The Knox Motor Truck Co., of Springfield, Mass., recently brought out their first three ton truck, Model B, all their former trucks were of 2 tons capacity, Model "A." A Model "B" truck made a run from the factory at Springfield to New York, a distance of 145 miles, in 11 hours and 30 minutes with no trouble of any kind.

The special features of the new truck are that the engine is connected directly to the driving axle by large, powerful spur gears, thus doing away with chains, bevel gears or universal joints. The crank shaft, all the transmission gearing, compensating gearing, driving axles and all the bearings for these parts are enclosed in one casing and oiled from one large mechanical oiler. All the parts of the engine, igniting system and chassis can be inspected without removing the load. The truck will run one hundred and fifty miles on one filling of gasoline and lubricating oil. A special tubular rear axle of great strength supports the load, and relieves the driving axle from all load strains. An extra large pump and radiator is used, eliminating difficulties from overheating and steaming, and all bearing and wearing parts are extra large and are adjustable for wear. The Model "B" has a carrying capacity of 6000 lbs., with a merchandise space of 12½ x 5 ft. The wheel base is 9½ ft., tread 58 ins., wheels 36 ins., equipped with 5 in. tires. The power is supplied by a 24 horse power water-cooled engine, having double horizontal cylinders. The transmission is direct drive, sliding spur gear, giving three forward speeds and one reverse. Timken adjustable roller bearings are used in the mechanism and running gear. Lubrication is accomplished by one mechanical oiler which lubricates the engine and all the mechanism. Three styles of bodies are carried in stock, No. 1, 20-inch side panel with removable canvas top (similar to cut); No. 2, platform body with removable side stakes; No. 3, full panel top body. Special bodies built to order, and painting and lettering to customers' specifications.

The maximum speed is 14 miles per hour. Weight, 6000 pounds and the price of chassis is $2500.



Atlas Model B 3-Ton Truck

Metz Consolidates With American Motor Company.

C. H. Metz has consolidated his interests with the American Motor Company and will hereafter take a lively interest in the concern. He will have exclusive charge of the output, which will keep the Metz motor cycle up to its present high standard of construction, and also improve the work on the Marsh motor cycle. The American Motor Company's plant at Brocton, Mass., is fitted throughout with the best modern machinery that can be obtained, and has sufficient capacity if worked to its limit to turn out 4,000 motor cycles annually.

Mr. Metz is one of the best known and most widely recognized motor cycle men in the [illegible] Sears [illegible] built the first motor tandems and tricycles that were used in this country. Since severing his connection with the Orient Company, he has confined himself to building the motor cycle which bears his name, and which is recognized to-day as a machine with most advanced features of construction.

The combination will still continue to manufacture the Marsh motor cycle as a belt drive which will probably market in 1906 for $175.00. They will make the single cylinder Metz motor cycle selling at $210.00 and the two cylinder Metz motor cycle, which will be equipped with either belt or chain drive as the customer desires, at $275.00.

The Wolverine Automobile & Commercial Vehicle Co. has been organized at Dundee, Mich., and has purchased the plant of the Reid Mfg. Co. of Detroit. The Wolverine Company will offer for 1906 a 2-cylinder, 4-cycle, 20 H. P. delivery truck, a 4-cylinder, 4-cycle touring car and a 2-cylinder, 2-cycle, 10 H. P., 850 lb. runabout, the chassis of which will also be furnished with a delivery body when desired.

Columbia Electric Brougham, Mark LXVIII

Columbia electric town carriages are used both in this country and Europe wherever vehicles of their class are in evidence. They have a high reputation and a prominent class of users. It is now nearly three years since the Electric Vehicle Company brought out a distinctly new type of electric town carriage, and the introduction of the brougham, as herewith illustrated, will be regarded as an event of importance in many centers of automobile trade and interest.

This new Brougham follows general lines which, during the past year, have met with rapidly increasing favor in Paris and London, but it is intended to be superior to any foreign-made vehicle both as regards artistic design and electrical and mechanical equipment. It is much lighter than any electric Brougham previously made in this country and the construction throughout is adapted to the use of pneumatic tires, which, in combination with a special spring suspension, afford remarkably easy riding qualities. With lightened construction, pneumatic tires, increased speed, improved control and steering and a more convenient and practical location of the driver's seat, the vehicle possesses many advantages over carriages of earlier styles, and with these more important new features are combined many minor improvements for further promoting the convenience and comfort of the occupants

The inside seats accomodate four persons The forward seat swings on hinges and when not in use may be lowered, leaving the forward space clear. The standard trimming is in rich dark green cloth or morocco. There are silk curtains, electric light with dome fixtures in the ceiling controlled from the inside, driver's electric signal, speaking tube, card case, memorandum pad and a mirror placed in a convenient pocket, also toilet case and electric cigar lighter, if desired. To these accessories may be added electric foot warmers for winter and electric fans for summer.

The most careful attention has been paid to the distribution of the constructive material used in the running and operating parts. Lightness has been obtained everywhere but nowhere at the expense of strength. The frame is of pressed steel.

The motor of special design, is connected to the driving axle by double reduction gears of the noiseless "herring-bone" type and the Brougham runs with exceptional quietness.

Columbia Electric Brougham, Mark LXVIII. Made with both ex panded and straight fronts. Wheelbase, 88 in.; tread, 62 in.; wheels, 32x4 front, 32x4½ rear, pneumatic tires; weight of running gear, 1500 lbs.; body, 515 lbs.; battery, 1035 lbs., total weight, 3 050 lbs. 40 volt, 50 ampere, series wound, G. E. type motor; 44-cell Exide 13 M. V. battery, 165 ampere hours capacity, range, 40; price, $4000.

There are five forward and three backward speeds with a maxium forward speed of 18 miles per hour, while the lowest speed is four miles per hour. The controller handle is placed on the steering column beneath the wheel, adjacent to the driver's left hand. An important advantage of the controller is its smoothness of operation From a standstill full headway may be obtained without apparent definition between the separate speeds as the lever is advanced through the series of five notches. There are two powerful foot-operated brakes and a foot-operated cut-out safety switch, insuring absolute control under all conditions of crowded city traffic. The regular equipment includes electric side lights of the most approved pattern, electric alarm gong operated by a foot push and a Weston combination volt-ammeter. The undersiung battery, of the latest Exide type, is put in from below. The radius is 40 miles per charge. With the same chassis are supplied Landaulet, Hansom and Victoria bodies. Price of the Brougham illustrated is $4,000.

The Curtiss Detachable Side Carriage.

The Curtiss Side Carriage

The G. H. Curtiss Manufacturing Company, Hammondsport, N. Y., have brought out a side car which has some new and important features, one of which is that it can be attached to any make of motorcycle, only two bolts being required to make the connections. This side car can be attached or detached in a minute. By the use of a side car one can converse in a normal tone with a companion and having the wheels running parallel enables the driver to turn corners at a greater speed than is possible with a plain motorcycle. The side wheel is adjustable to any gauge and can therefore be made to fit wagon tracks on country roads. The wheels being parallel, while affecting the steering very slightly, prevents slipping on icy or muddy roads. Another splendid feature is that with this machine there are only two tracks, thus making traveling easier than if there were three tracks made, as with trailers and fore cars. The list price is $50

The Brown Quadruple Side Tool Holder

Machinery Manufacturers, automobile and parts makers included, have use for tool holders and will undoubtedly be interested in a recent improvement in this line put out by Bown Machine Co., Battle Creek, Mich. It is designed to take the place of a right hand side tool, a left hand side tool, a right hand offset side tool and a lefthand offset side tool.

It is therefore 4 tools in one and is appropriately named the "Quadruple." The head, or clamp, which grips the blade is a swivel which can be turned entirely around and set at any angle. The opposite ends of a blade can be ground right and left or two blades can be used. The blade can be set at any angle instantly without disturbing the holder in the tool post. This feature makes the device a great time saver. The holder is made of drop forged machinery steel, case hardened. The post and cap are machinery steel, the collar tool steel, hardened and the blade the best high speed steel. The blade is supported on three sides, so clamped as to mechanically draw tighter and consequently is held rigidly. Prices range from $3.60 to $6.00 for sizes B-1 B-4 (½x1x8 to ⅞x1¾x9.) Each holder is equipped with a right and left hand reversible cutter.

The Brown Quadruple Side Tool Holder

The manufacturers of this tool holder are making to responsible parties a thirty-day trial offer in order to introduce the device quickly and enable reliable concerns to immediately learn of its advantages by actual use without expending any money on it till satisfied of its merit.

Every experienced automobile man, whether he is an owner, a dealer or a manufacturer, is sure to secure a copy of the January "Buyers' Guide Special" of the Cycle and Automobile Trade Journal. Price of single copies of this issue is 50 cents each, but it is included free of charge in a yearly subscription at $1.00.

The "Excelsior" Spark Plug

The "Excelsior" spark plug possesses features not common to others and appears to represent an entirely new departure in spark plug construction. The manufacturers, Excelsior Spark Plug Co., of Cleveland, Ohio, have not attempted to produce a plug which would not foul for they claim that with imperfect combustion any plug will get sooted up. They have, however, provided means for

The "Excelsior" Spark Plug, partly in section. The cut shows the ventilating passages open and the gases rushing out, cleaning away all soot deposits.

getting rid of soot deposits without stopping the engine and without removing the plug. This instantaneous, simple means of cleaning the "Excelsior" plug is its chief feature, and is well illustrated by the accompanying cut. Several openings (D) extend from the inner part of the shell through the steel of the hexagon portion and terminate under the upper hexagon nut or collar (C), which is provided with a solid copper washer and ordinarily jammed down tight, effectually closing the openings (D) and thus sealing the plug. When it is desired to clean the plug just a slight turn is given the collar (C) with a wrench and the holes (D) are uncovered, allowing the gases on compression, explosion and suction to rush violently back and forth through the plug quickly removing all carbon and soot from the inner surfaces. This also removes condensation of moisture which sometimes short-circuits spark plugs in large engines and incidentally the plug forms a very handy compression relief cock by loosening the sealing collar above mentioned.

The central electrode of this plug is so formed as to shed any oil spray which might light upon it. The electrode extends slightly below the cross piece from which the spark jumps to the shell and oil which lights on the electrode will drip off the extreme end of the electrode instead of remaining on the sparking points.

The insulating material is Natural Stone which is treated with a fire-proof filling composition at a pressure of several hundred pounds to the square inch. This process closes all pores and makes the insulation non-absorbent. The stone is held in position in a novel manner which does away entirely with packing of every description and allows full expansion and contraction of the parts without danger of breakage.

Muncie Auto Parts Co.

H. L. Warner, of the Warner Gear Co., C. T. Quayle, of the Quayle Oil Co., H. L. Hooke and C. Roy Hathaway have incorporated the Muncie Auto Parts Co. at Muncie, Ind., to manufacture automobile parts. Mr. Quayle, who is president of the company, holds large producing interests in Muncie, and Mr. Hathaway, who is vice president, is assistant cashier of the Union National Bank of Muncie. Mr. Hooke was formerly connected with this bank, and is now secretary-treasurer of the Muncie Auto Parts Co. Mr. Warner, as is well known, is the inventor of the Warner Differential Gear made by the company, which bears his name

The Muncie Auto Parts Co. has a very complete equipment of the very best and most modern machine tools, and will from time to time add such others as their business may require. They intend to manufacture to blue print such parts as transmission gears, either complete or the gears only, bevel gears, spur gears, and all kinds of gears used in automobile construction, steering devices, steering columns, wheels, etc., also.

A special department will be devoted to the manufacture of their own 2-cycle engine, which is a 2-cylinder upright; air or water cooled, 4x4, of the latest and best possible construction. This engine was designed by Mr. H. L. Warner, and has been running on a car for several months. The 2-cycle engine will be sold to manufacturers for 1906 cars.

The company will build to order for anyone 2 or 4-cycle engines and other parts as desired.

Stanley Volt and Ammeter

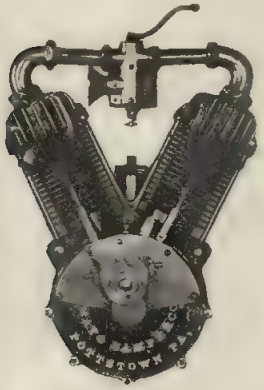
Stanley-G. I. Electric Meter Co., 29 Broadway, N. Y., which recently absorbed the General Incandescent Arc Light Co., manu-

Stanley portable type voltmeter.

facture volt and ampere meters for automobilists' use. They make both portable and

"Mayo" 2-Cylinder Cycle Motor

Mayo Damper Co., 855 Walnut Street, Pottstown, Pa., has brought out a new cycle motor—a 2-cylinder one—possessing several improved features. The cylinders are close together, giving very regular explosions and avoiding undue vibration. This motor gives 5 horse power and weighs 53 lbs. It operates, of course, on the 4-cycle principle. Both exhaust valves are operated from one gear having two cams on it. Thus there are only 2 gears to operate for all functions of the motor. Very long bearings are provided on this



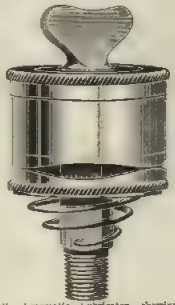
Mayo 2-Cylinder Cycle Motor

motor and the shaft is of tool steel, as are also the piston rod pins. The exhaust lever bushings and cams are all oiled from the crank shaft. A "Mayo" float feed carburetor is used, it being provided with double openings.

T. J. Kean of 1534 N. Carlisle St., Phila., Pa., is riding their first Motor He says it is the fastest motor ever put on two wheels, and that he don't believe any man can sit on it if he puts all the power on. They are now ready to put this Motor on the market, either separately or on complete Motor Cycles.

"Standard" Automatic Lubricators

Standard Garage Mfg. Co., of Syracuse, N. Y., have lately placed on the market an automobile lubricator or grease cup for automobiles which the accompanying cut illustrates. A feature of this lubricator is the groved joint in the body, plainly shown in the cut, by which a simple turn of the thumb screw on top opens the lubricator and supplies an extra amount of grease to the bearing. This cup is said not to be affected by vibration, which is a very important consideration for this service and is very easily adjusted. In fact this type of lubricator



Standard Automatic Lubricator, showing grooved joint in the body.

is now in general use in all Europe for Auto service, having been adopted after many years of satisfactory results.

Trade Notes

The Continental Caoutchouc Co. 43 Warren street, New York, have established branches at 729 Main street, Buffalo, N. Y., and 325 Huron street, Cleveland, Ohio. This company, which represents Continental tires in America, reports that out of 63 victorious cars in the Pyrenees Cup races, 21 were equipped with Continental tires.

The Atwood Mfg. Co. of Amesbury, Mass., makers of lamps and generators, are moving into their new 5-story building which will give them 3 times their present facilities and capacity. They will have several new lamps and a generator for the 1906 trade.

Davis Mfg. Co. 735-739 Thirtieth street, Milwaukee, Wis., are now working a larger engine of the same type as the one we described on page 130 of our September issue. The larger engine is of 5 inch bore by 4½ inch stroke and measures 31 inches over all. It has a 125 lb. flywheel.

F. H. Bultman & Co., Cleveland, Ohio, who cut gears for all purposes, have recently taken up the manufacture of automobile transmissions and differentials on order. They makes these only to customers' specifications and has no stock transmissions or differentials.

Willard C. Life, Alexander T. Brown, H. Winfield Chapin, Charles L. Ackerson and W. H. Diefendorf, all well-known men in the trade have formed the Syracuse Aluminum & Bronze Co. which has opened a foundry at Syracuse, N. Y., and will make a specialty of aluminum and bronze castings for the automobile trade

Pope-Toledo Type X

The first of the 1906 models presented by the Pope Motor Car Company, of Toledo, is Type X. In designing this car, the company has endeavored to embody all the accepted features of the world's best practice in automobile construction. It has thoroughness in detail; has ample power; its strength is in proportion to its weight; has grace of design; affords comfort under all conditions of travel, and its selling price, $2800, is within easy reach of the majority of people.

Pope-Toledo, Type X Price, $2800.

The car has a speed of 45 to 50 miles per hour, has smooth and quiet running qualities, and will negotiate, on its high speed gear, almost any hill. While it is capable of all-around touring, it has an advantage in that it is especially well adapted to city use. Its simple construction appeals forcibly to one desiring to operate and care for the car personally. Its weight is but 1800 lbs., and is economical on tires.

The performance of the few cars of this type, which have been tested out, is convincing that it will be one of the most popular cars the Pope Motor Car Company has ever turned out.

Type X is driven by a 4-cylinder, 4-cycle, gasoline engine of 3¾ inch bore and 4¾ inch stroke, developing 20 H. P. at 900 R. P. M. The carburetor is of Pope design, and very economical of fuel, giving 20 miles running to a gallon of fuel. It works satisfactorily at any speed from 200 to 1200 R. P. M. The engine is water cooled and a gear driven centrifugal pump is used. The capacity of the cooler is 3 gallons. The clutch is of external cone type and of new design. Transmission of power is through sliding gears and two outside chains. The change speed gear gives 3 speeds forward and the reverse. The frame is of channel steel and the wheel base is 88 inches. A 10-gallon gasoline tank is attached to the rear of the chassis.

1906 Improvements on Williams "Coils"

E. Q. Williams of 535 S. Clinton St., Syracuse, N. Y., is bringing out a new coil for the '06 season that is an improvement on the '05 style in several ways. It is wound in such a way that there is practically no possibility of a break down. The vibrator is changed so as to get away from the bent spring and use a straight one, the adjusting screw is arranged so that the adjustment is positive in both directions and and so that the vibrator spring has a solid fulcrum to work from at all times. The adjustment screw does not depend on the vibrator spring at all, but has a strong spring of its own to hold it in position. All adjusting screws are easily worked from the front of the case, and by using a new binding post on the bottom that embodies a new principle, all the bottom connections can be easily made with a screw driver from the front of the case. This new binding post cannot cut off the wires nor jam them in any way, and allows the coil to be set much lower on the dash than has heretofore been possible.

The coil is also smaller and quicker than the older type and is exceptionally economical in the battery consumption using less than ½ ampere when running, and when running on an engine it uses only 1-10 to 2-10 of an ampere.

U. S. Emergency Case Co., Utica, N. Y., are offering the automobile trade an emergency case which contains everything necessary for the permanent treatment of simple injuries such as are liable to be received in handling machinery of any kind and the temporary treatment of more serious ones. The articles are enclosed in a metal air tight case, the outfit listing at only $1.00. A book "First Aid to the Injured" is also included. A larger outfit is listed at $3.50, the case being 8⅜x10½x2 inches.

lugs, thus insuring an acid resisting connection and reliable electrical contact.

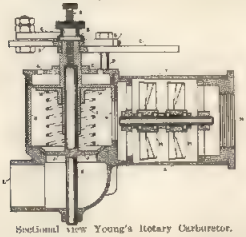
The cells are encased in a hard wood or metal box. The case cover is of hard rubber and through it pass the stout terminals of pure lead. The brass thumb screws and nut connectors have a thick covering of lead.

Youngs's Rotary Carburetor

This carburetor, which is manufactured by Culver Novelty Co., of Culver, Ind., has no float.

The admission valves are so constructed that they provide a simple and reliable valve device whereby the supply of air and gasoline, in regulated proportions, may be readily controlled, and the quantity admitted varied according to the speed of the engine.

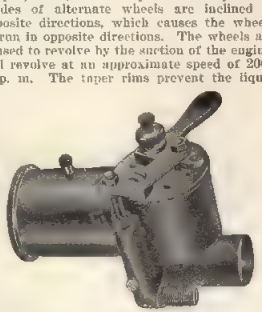
By means of lever (C) and the co-operating connections (R. C. & F.) the air and gasoline controlling valves may be adjusted to admit any desired amount of air and gasoline upon each suction stroke of the engine. Valve (J.J.) is opened by the suction of the engine and its travel is regulated by screw (A). The



Sectional view Young's Rotary Carburetor.

gasoline opening is located in the seat of this valve, so that when the valve is raised both air and gasoline are admitted, and when closed both are shut off. (O. & P.) represent the throttle valve, which is a tube or sleeve fitted on the inside of the valve chamber, of which (O) is the wall and (P) an opening that connects with the mixing chamber and controls the feed thereto. The throttle valve is connected to long lever (C), also to the valve stem (D). This stem ends with a needle point valve which has an opening under the valve (J. J.), and controls the flow of gasoline. The connecting bars (C) and (F) are slotted, which permits a proportionate adjustment of air and gasoline. Moving the long lever (C) admits or shuts off, at the same time and in the same proportion, the air and gasoline from the mixing chamber.

In high speed engines an auxiliary valve (H. H.) is used, which works on the inside of the cap over the valve chamber and is held closed by a light coil spring (I) working over the valve stem (K). The ports (G. G.) admit the air through the outer shell. The perforations in the top of the throttle, that are closed by the auxiliary valve (H. H.), are about one-half the area of the air valve (J. J.), consequently the auxiliary valve works only when the engine is running at high speed, thereby adding pure air, which prevents the mixture from becoming too rich. The mixing chamber contains a series of wheels with ball bearings mounted on a shaft, and constructed of blades and taper (or cone shaped) rims, which taper forwardly. The blades of alternate wheels are inclined in opposite directions, which causes the wheels to run in opposite directions. The wheels are caused to revolve by the suction of the engine, and revolve at an approximate speed of 2000 r. p. m. The taper rims prevent the liquid



Exterior view Young's Rotary Carburetor.

from being thrown by centrifugal force against the walls of the casing and also turn the flow of gasoline towards the centre of the wheel immediately forward, thereby assuring a perfect mixture of air and gasoline.

At the first impulse of the engine, valve (J. J.) is raised which admits air through opening (L), also gasoline through an opening in the valve seat, into the large air chamber. From there the crude mixture is carried through an opening (P) into the mixing chamber, where it is thoroughly vaporized and taken as an highly explosive mixture through opening (N) into the engine.

A Great Subscription Offer

The January number, which will contain over 700 pages and will sell for 50 cents a copy, is offered free of charge with a year's subscription. Fill in subscription blank on page 333 and mail with $1.00 at once.

Every one interested in automobiles can obtain more information of practical value in the January "Buyers' Guide Special" issue of the Cycle and Automobile Trade Journal than any other single copy of any automobile publication in the world. Its price is 50 cents per copy, but it is included free of charge with a year's subscription at $1.00. Subscription blank will be found on page 333.

Adrian Steel Castings Co., Adrian, Mich., make crucible steel castings and are handling orders from a number of prominent automobile and engine manufacturers. They have a 6 hole, 24-pot furnace with a capacity of 4 tons per day. Their castings are strong, soft, solid, clean, true to pattern and seem to be giving perfect satisfaction. They make prompt shipments.

The Mosler Spit Fire Spark Plugs

Actually "SPIT FIRE" where others spark only

ENERGETIC IGNITION GREATER POWER

And stand more **SOOT, OIL** and **WATER** than any other Plug

Base acts as Condenser of Electricity

Economizes Current Facilitates Sparking

Forms Compression Chamber Makes Plugs Spit Fire

Protects Porcelain and Sparking Points

A TRIAL IS CONCLUSIVE

Standard size, **$1.50** postpaid

With patented protector, $2.00

Made to fit any engine, any thread

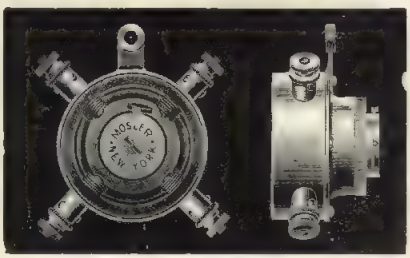
Write now for 1906 Illustrated Catalogue of **Mosler Ignition Outfits**

Special Discount to Manufacturers

The Mosler Timers and Distributers

Run in oil, in either direction. Not affected by engine speed. Self adjusting. Multiple cylinders set as easy as one. Self contained.

Timer and Distributer



Ball Snap Timer

A. R. MOSLER & CO., 1679 Broadway, New York

Solid Cast Steel Mauls.

B. & H. Special, Oregon Pattern.

Round Eye, Solid Cast Steel, Oil Finish, Polished Face and Bit.

Code Abmaunt		Per Pound
No. 1760—Weight 8 to 12 lbs.,	. . . . .	$0.36

B. & H. Special, Oregon Pattern.

Double Bitted Axe Eye, Solid Cast Steel, Oil Finish, Polished Face and Bit.

Code Abmalc.		Per Pound
No. 1766—Weight 8 to 12 lbs.,	. . . . .	$0.36

Eastern Oregon Pattern.

Round Eye, Solid Cast Steel, Oil Finish, Polished Face and Bit.

Code Abmeriez		Per Pound
No. 1260—Weight 8 to 12 lbs.,	. .	$0.36

Eastern Oregon Pattern.

D. B. Axe Eye, Solid Cast Steel, Oil Finish, Polished Face and Bit.

Code Abmons		Per Pound
No. 1266—Weight 8 to 12 lbs.,		$0.36

Solid Cast Steel Hammers.

Hand Drilling, California Pattern.

Solid Cast Steel, Oil Finish, Polished Faces.

	Code Abtetinae.	Per Pound
No. 760B—Eureka, Unhandled, 3 to 4½ lbs.,		$0.40
No. H760B—Eureka, Handled, 3 to 4½ lbs.	Code Abterrite	.50

Hand Drilling, Nevada Pattern

Solid Cast Steel, Oil Finish, Polished Faces.

	Code Abigarum.	Per Pound
No. 750—Eureka, Unhandled, 3 to 4½ lbs.,		$0.36
No. H750—Eureka, Handled, 3 to 4½ lbs.,	Code Abigatos.	.46

Napping.

Solid Cast Steel, Oil Finish, Polished Faces.

	Code Abigerem.	Per Pound
No. 890—Eureka, Unhandled, 6 to 12 lbs.,		$0.36

Stone Mason's.

Solid Cast Steel, Axe Finish.

	Code Abileni	Per Pound
No. 970—Eureka, Unhandled, 3 to 4½ lbs		$0.75
No. 970—Eureka, Unhandled, 5 to 12 lbs.,	Code Abilitano.	.50

Solid Cast Steel Mauls.

Ship or Top Maul.

Solid Cast Steel, Oil Finish, Polished Face.

	Code Abilites.	Per Pound
No. 5—Eureka, Unhandled, Weight, 4 to 7 lbs.,		$0.36

Railroad Spike.

Solid Cast Steel, Oil Finish, Polished Faces.

	Code Abilmente.	Per Pound
No. 10—Eureka, Unhandled, Weight, 8 lbs.,		$0.36

Hand Drilling Hammers

Nevada Pattern
Solid Cast Steel, Poushed Face, Oil Finish

No.		Per Pound
750B	Unhandled	$0 50

Weights, 3, 3½ and 4 Pounds

California Pattern
Solid Cast Steel Polished Face, Oil Finish

No.		Per Pound
760B	-Unhandled	$0.50

Weights, 3, 3½ and 4 Pounds

Double Face Striking Hammers

Nevada Pattern
Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
750	—Unhandled	$0.30

Weights, 5, 5½, 6, 6½, 7 and 8 Pounds

Oregon Pattern
Solid Cast Steel, Poushed Face, Oil Finish

No.		Per Pound
760	—Unhandled	$0 30

Weights, 9, 10, 12, 14, 16, 18 and 20 Pounds

Blacksmiths Sledges

Cross Pein
Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
830	—Unhandled	$0 30

Weights, 6, 8, 10, 12, 14 and 16 Pounds

Straight Pein
Solid Cast Steel, Polished Face Oil Finish

No.		Per Pound
840	—Unhandled	$0.30

Weights, 6, 8, 10, 12, 14 and 16 Pounds

Stone Sledges

Solid Cast Steel, Polished Face Oil Finish

No.		Per Pound
730	—Unhandled	$0.30

Weights, 12, 14 and 16 Pounds

Coal Sledges

Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
800	—Unhandled	$0.30

Weights, 5, 6, 7 and 8 Pounds

Spauling or Stone Hammers

Single Face
Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
710	4 Pounds, Unhandled	$0 50
	6 to 12 Pounds, Unhandled	.40

Weights, 4, 6, 8, 10 and 12 Pounds

Double Face
Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
720	3 to 4 Pounds, Unhandled	$0 50
	6 to 16 Pounds, Unhandled	.40

Weights, 3, 4, 6, 8, 10, 12, 14 and 16 Pounds

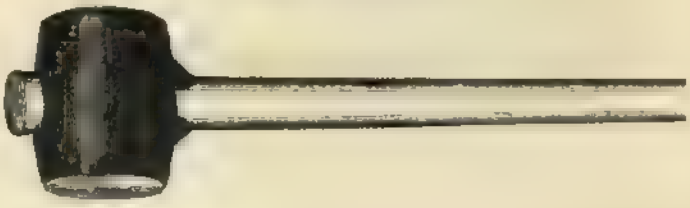
Ship or Top Mauls

Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
930	—Unhandled	$0 42

Weights, 4, 4½, 5, 5½, 6 and 7 Pounds

Post Mauls



Cast Iron

Per Pound, Unhandled $0.10

Weights, 12, 16 and 20 Pounds

Railroad Track Mauls

Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
920	—Unhandled	$0 30

Weights, 7, 8, 9 and 10 Pounds

Woodchoppers Mauls

Oregon Pattern, Round Eye
Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
960	—	$0 36

Weights, 6, 7, 8, 9, 10 and 12 Pounds

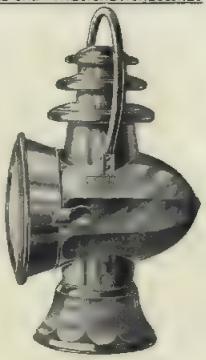
Oregon Pattern, Axe Eye
Solid Cast Steel, Polished Face, Oil Finish

No.		Per Pound
960A	—	$0.36

Weights, 6, 7, 8, 9, 10 and 12 Pounds

Atwood Manufacturing Company's Latest Creations for 1906

A NEW and RICH DESIGN which will strongly appeal to critical people. The finest oil Lamp without exception ever produced. Will be found on the Highest Grade Cars for 1906. Like all our famous "Staylit" Oil Lamps gives a fine light, is free from smoke and guaranteed in every respect.



Design Patent applied for

Patent applied for

Our New Generator

Which is the *most important part of a Gas Lamp* is absolutely the most simple and effective one yet produced. Free trial. Satisfaction guaranteed or no sale. See it before placing contracts for 1906.

Atwood Manufacturing Co.

Amesbury, Mass.

(Established 1871)

ONE OF

Atwood Manufacturing Co's

LATEST MODELS

Design Patent applied for

No. 31. Oil Sidelight. Very Latest

VERY RICH AND EXCLUSIVE. The highest grade oil Lamp ever produced by any manufacturer. In a class by itself, because there is no other oil Lamp today that can any where approach it.

We were not satisfied with merely producing a Lamp that would **burn,** that would **not smoke,** that would **stay lighted,** that was **strong** and **finely finisned,** important as these all are, but it must have some **style** about it. A smart look! When you get an Atwood Lamp you get ALL of these requisites.

MORAL

It is not necessary for a Lamp to be homely and crude in order to be good.

Our new Lamp factory is the largest and most complete in the United States

Atwood Manufacturing Co.

Amesbury, Mass.

RAG DOLLS.

No. 4918-9

No. 4919-17½

4918-9 Special Rag Doll Flexible hip joints, lithographed face, black legs and feet, printed cloth dress trimmed with lace edging. Height, 10 in. 1 dozen in a box.
Per doz., $0.90

4919-17½ Rag Doll with flexible joints, lithographed face, red legs, black feet, printed gingham dress with ruffled collar trimmed with lace edging Height, 12 in. 1 dozen in a box. **Per doz., $1.75**

No. 4920-20

No. 4921-22½

4920-20 Special Clown Rag Doll with flexible hip joints, lithographed face, dressed in red and black polka dot print cloth. Height, 14 in. 1 dozen in a box.
Per doz., $2.00

4921-22½ Special Rag Doll. Flexible hip joints, lithographed face, print cloth dress with lace edging, red legs and black feet. Height, 14 in. 1 dozen assorted in a box. **Per doz., $2.25**

No. 4922-22½

No. 4923-22½

4922-22½ Special Sailor Boy Rag Doll. Red legs and black feet, dressed in navy blue suit trimmed with white braid Height, 14 in. 1 dozen in a box.
Per doz., $2.25

4923-22½ Special Sailor Girl Doll. Red legs, black feet, dressed in navy blue costume with white braid trimming. Height, 15 in. 1 dozen in a box.
Per doz., $2.25

4485-40 The New Dusky Dude Rag Doll. Curly hair, black satin face embroidered with wash silk, bead eyes, dressed in a gray duck suit with hat to match. Height, 15 in. Each in a box.
Per doz., $4.00

4485-40 Aunt Dinah Rag Doll Flexible hip joints, face made of black satin, stuffed with cotton, face embroidered with silk, print cloth dress and apron, bandana hat. Height, 15 in Each in box.
Per doz., $4.00

No. 4487-40

No. 4488-40

4487-40 Plain Rag Doll. Flexible hip joints, body made of wash material, stuffed with cotton, can be washed, making it a good doll for a child. Has handsomely painted satin face, print cloth dress trimmed with lace edging. Height, 15 in. Each in a box. **Per doz., $4.00**

4488-40 Rag Doll. Flexible hip joints, made of wash material stuffed with cotton, makes it a very fine knock about doll for little children. Has a hand painted satin face, curly hair, print cloth and duck suit. Height, 15 in. Each in a box.
Per doz., $4.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

PLAIN GRAY RUBBER DOLLS WITH WHISTLES

6000-7½ Height, 4½ in. 1 dozen in box Per doz., $0.75
6001-8½ Height, 5 in. 1 dozen in box Per doz., $0.85
5825-12¼ Height, 6½ in. ½ dozen in box. Per doz., $1.25
6003-15 Height, 7 in. 1 dozen in box Per doz., $1.50
6004-18¼ Height, 7½ in. ½ dozen in box Per doz., $1.85
5826-20 Height, 8 in. ½ dozen in box Per doz., $2.00
6005-22½ Height, 8½ in ½ dozen in box. Per doz., $2.25
5827-38¼ Height, 10 in ½ dozen in box. Per doz., $3.85
5828-85 Height, 12 in ½ dozen in box Per doz., $8.50

DRESSED RUBBER DOLLS.

With Assorted Colored Knit Worsted Dresses, and whistles.

6006-7½ Height, 4½ in. 1 dozen in box Per doz., $0.75
6007-11¾ Height, 5¼ in. 1 dozen in box. Per doz., $1.15
5818-17¾ Height, 7¼ in with hat ½ dozen in box. Per doz., $1.75
5819-20 Height, 7¼ in. with hat ½ dozen in box. Per doz., $2.00
6009-23½ Height, 7¾ in. ½ dozen in box Per doz., $2.25
6010-25 Height, 8¾ in ½ dozen in box Per doz., $2.50
6011-35. Height, 9 in ½ dozen in box Per doz., $3.50
5820-38½ Height, 9¾ in. with hat ½ dozen in box. Per doz., $3.85
6012-40 Height, 10 in ½ dozen in box Per doz., $4.00
5821-45 Height, 10½ in. ½ dozen in box Per doz., $4.50

6013-4 Plain Rubber Baby Papoose Height, 3½ in. 1 dozen in box. Per doz., $0.40

5830-4½ Gray Rubber Baby, with whistle. Height, 3 in 1 dozen in box. Per doz., $0.45

5831-4½ Gray Rubber Chicken, with whistle. Size, 2x2½ in. 1 dozen in box Per doz., $0.45

5832-7½ Gray Rubber Baby, with whistle. Height, 3¾ in 1 dozen in box. Per doz., $0.75

6014-7½ Baby Doll, with elastic cord Height, 3½ in 1 dozen in box. Per doz., $0.75

6015-8 Rubber Soldier Doll Height, 4 in. 1 dozen in box Per doz., $0.80

No. 5833-8½

5833-8½ Gray Rubber Baby, with whistle. Height, 4½ in. 1 dozen in box. Per doz., $0.85

No. 6016-8¾

6016-8¾ Rubber Papoose Doll Height 5 in. 1 dozen in box. Per doz., $.85

6017-8¼ Assorted Rubber Baby Boy and Girl Dolls. Height, 5 in. 1 dozen in box. Per doz., $0.85

6018-12½ Rubber Baby, with imitation dress. Height, 5 in. 1 dozen in box. Per doz., $1.25

6019-13½ Rubber Boy, with imitation dress, assorted styles. Height, 5 in 1 dozen in box. Per doz., $1.25

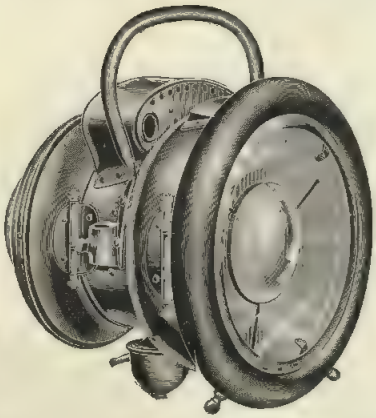
6020-12½ Rubber Cat, in basket. Height, 4 in 1 dozen in box. Per doz., $1.25

6021-12½ Baby in Shoe. Height, 3½x4 in. 1 dozen in box. Per doz., $1.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

AUTOLYTE

MODEL 1906



100.	Diameter of front, 9 inches; Depth 9 inches.	Price, $12.50
101.	" " 10 " " 10 "	" 15.00
102.	" " 11 " " 11 "	" 20.00

NOTE: These are New Style **Open Back and Front**

Send for lists of Lamps and Imported Horns

A. H. FUNKE

83 Chambers Street - New York

1906 Atwood Lamps And Generator

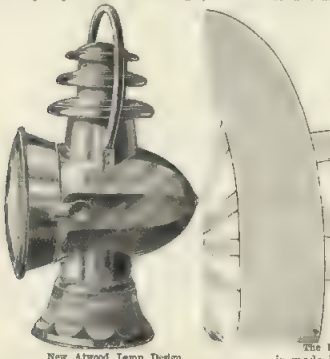
Atwood Mfg. Co., Amesbury, Mass., has brought some new lamp designs for 1906, the lamp shown herewith giving a good idea of the design scheme of the Atwood 1906 line. They have also added a new gas generator,

New Atwood Generator.

which we show herewith. It is impossible to overload this generator, as the carbide receptacle is filled to the top. The amount of carbide to be put in is not left to guess work. Another feature is the ample space provided for the residue or ashes of the slacked carbide. The residue does not cake, as it is practically dry. This is due largely to the efficient water feed, just enough water feeding for the amount of carbide. The new Atwood generator is also simple both in construction and operation. By partially unscrewing two thumb screws, the door can be removed and the drawer pulled out which contains the carbide basket.

To charge the generator this drawer is uncovered and the basket filled level with the top. Then the door is screwed down tight and the generator filled with water through the filler cap. To clean the generator it is only necessary to take out the drawer, remove the carbide basket and shake the ashes out of the drawer. The ashes will drop right out and no digging or washing is necessary.

The water enters the carbide chamber through a perforated disk surrounded by a metal collar located in the cover of the drawer. This automatic water feed arrangement prevents dust from arising and clogging valve, tubes and tips. It also prevents condensation reaching the carbide and causing an excess of gas. The cooling system of this generator consists of a water jacket surrounding the inner casing (which contains the carbide chamber) and a dead air space between the two.

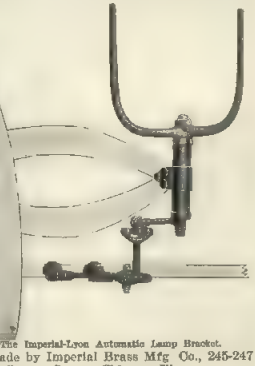


New Atwood Lamp Design.

Imperial Lyon Automatic Lamp Adjuster

The Imperial-Lyon Automatic Lamp Adjuster is a bracket for automobile lamps which has a connection with the steering knuckle rod, and causes the lamp to move with the wheels. It turns automatically with the steering wheel, and can be adjusted to move automatically as fast or faster than the wheels.

It makes the lamp throw a light around a corner, illuminating the way before the body of the car swings. Its advantages for night riding are obvious. The device is made of solid brass, and is handsomely finished. It



The Imperial-Lyon Automatic Lamp Bracket.

is made by Imperial Brass Mfg Co., 245-247 S. Jefferson Street, Chicago, Ill.

The Triumph gasoline gage made by Boston Auto Gage Co., of Boston, Mass., has been adopted as part of the regular equipment of 1906 Pierce Great Arrow cars.

Baker's Sunrise Hatchets.

Shingling.
Cast Steel, Black Finish, Polished Bit.

Nos.	1	2
Code	Abdominum.	Abdroken.
Cut, Inches,	3½	3⅞
Weight Per Dozen, lbs.,	19	25
Per Dozen,	$8.00	8.50

Claw.
Cast Steel, Black Finish, Polished Bit.

Nos.	1	2
Code	Abdruck.	Abducent.
Cut, Inches,	3½	3⅞
Weight Per Dozen, lbs.,	21	25
Per Dozen,	$9.00	9.50

Lathing Hatchets.

Lightning.
Refined Cast Steel, Gun Metal Finish.

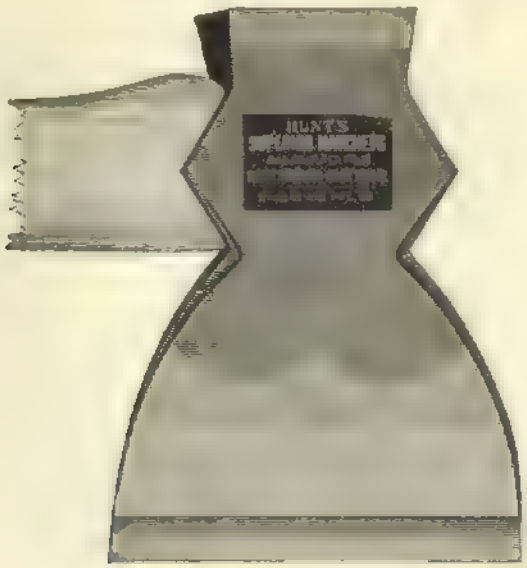
Nos.	1	2
Code	Abductetur.	Abduction.
Cut, Inches,	2½	2¾
Weight Per Dozen, lbs.,	19	25
Per Dozen,	$8.00	8.50

Collins.
Best Cast Steel, Gold Bronzed, Polished Bit.

Nos.	1	2
Code	Abdultore.	Abduzeo.
Cut, Inches,	2½	2¾
Weight Per Dozen, lbs.,	19	25
Per Dozen,	$8.00	8.50

Half Dozen in a Box

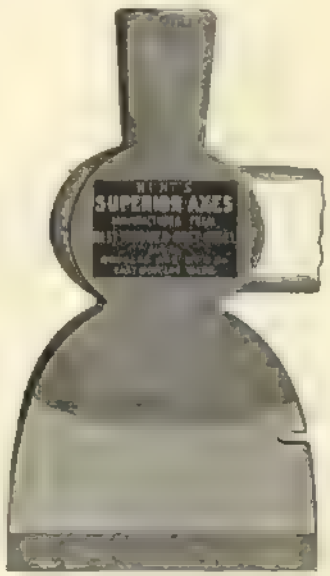
Hunt's Hatchets.



Broad.

Superior Cast Steel, Black Finish, Polished Bit

Nos.	2	3	4	5
Code	Abdelads.	Abdemur.	Abdenago.	Abderians.
Cut Inches,	4½	5	5½	6
Weight Per Dozen, lbs.,	23	30	38	46
Per Dozen,	$11.50	13.00	14.50	16.50



Shingling.

Superior Cast Steel, Black Finish, Polished Bit

Nos.	1	2	3
Code	Abdesto.	Abdicable.	Abdicamos.
Cut Inches,	3½	3⅞	4⅜
Weight Per Dozen, lbs.,	19	25	28
Per Dozen,	$8.00	8.50	9.50

Claw.

Superior Cast Steel, Black Finish, Polished Bit

Nos.	1	2	3
Code	Abdicando.	Abdicants.	Abdication.
Cut Inches,	3½	3⅞	4⅜
Weight Per Dozen, lbs.,	21	25	30
Per Dozen,	$9.00	9.50	10.00

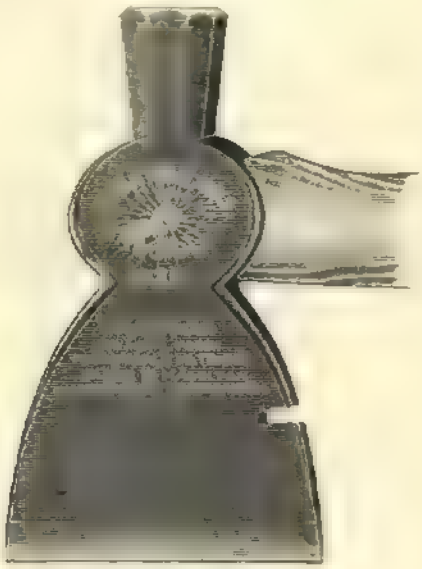
Half Dozen in a Box.

Lightning Hatchets.

Broad.

Refined Cast Steel, Gun Metal Finish.

Nos.	2	3	4	5
Code	Abbaye.	Abbaziale.	Abbeutein.	Abbevero.
Cut Inches,	4½	5	5½	6
Weight Per Dozen, lbs.,	23	30	38	46
Per Dozen,	$11.50	13.00	14.50	16.50



Shingling.

Refined Cast Steel, Gun Metal Finish.

Nos.	1	2	3
Code	Abbiadava.	Abbied.	Abbild.
Cut Inches,	3½	3⅞	4⅜
Weight Per Dozen lbs.,	19	25	28
Per Dozen,	$8.00	8.50	9.00

Claw.

Refined Cast Steel, Gun Metal Finish.

Nos.	1	2	3
Code	Abbindola.	Abbloca.	Abbloscio.
Cut Inches,	3½	3⅞	4⅜
Weight Per Dozen, lbs.,	21	25	30
Per Dozen,	$9.00	9.50	10.00

Half Dozen in a Box

Adzes.

House, Half Head.

Lightning.

Code Abbajeer. Per Dozen

No. 3—Refined Cast Steel, Gold Bronzed Polished Bit, Cut 4½ In. . $24.00
Weight, 60 lbs. Per Dozen

Half Dozen in a Case

Hunt's.

Code Abbassavn. Per Dozen

No. 4—Superior Cast Steel Black Finish. Polished Bit, Cut 4½ In. $24.00
Weight, 60 lbs. Per Dozen.

Railroad, Full Head.

Lightning.

Code Abbassoni. Per Dozen

No. 6—Refined Cast Steel, Gold Bronzed Polished Bit, Cut 5 to 5½ In., $24 00
Weight, 65 lbs. Per Dozen

Half Dozen in a Case.

Hunt's.

Code Abbattere. Per Dozen

No. 7—Superior Cast Steel, Black Finish, Polished Bit, Cut 4½ In., . . $24.00
Weight, 65 lbs. Per Dozen.

ENGINES CONTINUED.

HORIZONTAL CENTER CRANK CROSS COMPOUND ENGINE.

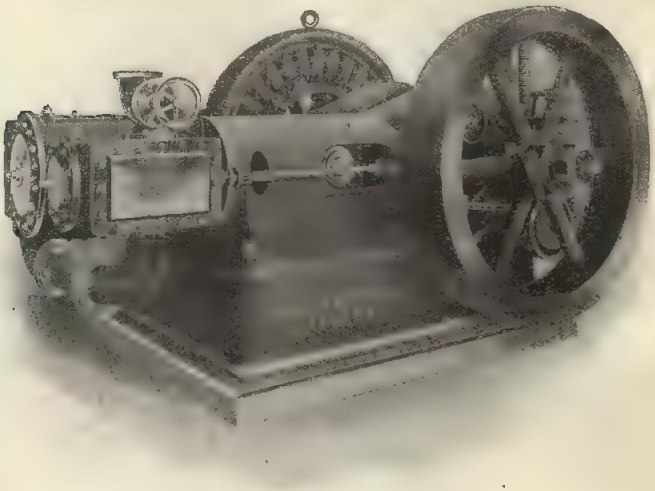


FIG. 2287

Direct connected to generator. Built in sizes between 100 and 500 horse-power.

SINGLE CYLINDER ENGINE.

DIRECT CONNECTED.

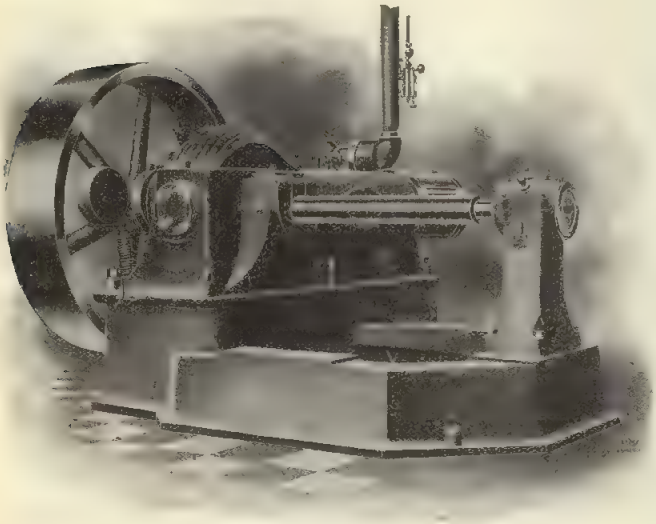
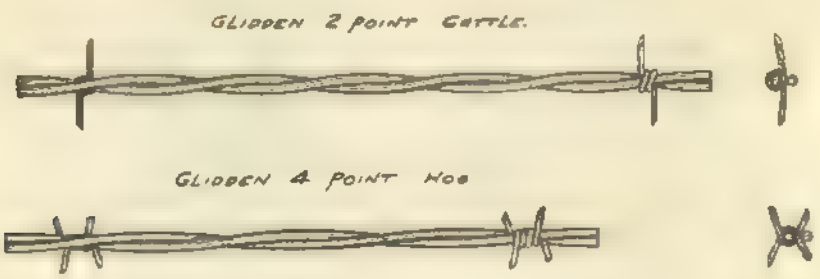


FIG. 2288

Horizontal Single Cylinder Ball Automatic Center Crank Self-Oiling Engine (arranged for Direct Connection to Generator).

Barbed Fence Wire



Glidden

Strands Made of No. 12 Wire, Round Barbs

Regular or Cattle Barbs 5 inches apart	Per 100 Pounds	Thickset or Hog Barbs 3 inches apart	Per 100 Pounds
2 Point, Galvanized	....	2 Point, Galvanized.	
2 Point, Painted	....	2 Point, Painted	
4 Point, Galvanized	....	4 Point, Galvanized	
4 Point, Painted	....	4 Point, Painted	

Weight about 15 Feet to the Pound or 350 Pounds to the Mile

Minnequa

Strands Made of No. 13 Wire, Half Round Barbs, Short and Sharp

Regular or Cattle Barbs 5 inches apart	Per 100 Pounds	Thickset or Hog Barbs 3 inches apart	Per 100 Pounds
2 Point, Galvanized	....	2 Point, Galvanized	
2 Point, Painted	....	2 Point, Painted	
4 Point, Galvanized	....	4 Point, Galvanized	
4 Point, Painted	....	4 Point, Painted	

Weight about 205 Pounds to the Mile

Wire Stretchers

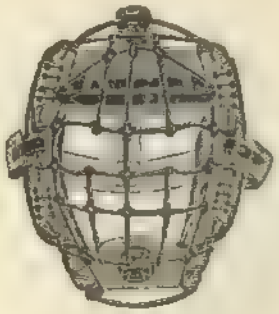
No.		Per Doz
2345	Ellwood Wire Stretcher, Double Ratchet, Wrought Iron Handle and Bar, Iron Castings. Length of Handle 14 in.	$12 00

Weight per Doz., 70 Pounds

Base Ball Goods

CATCHERS MASKS

Nos. 35, 31
Patent Pneumatic Cushion Mask



Nos. 25, 22
Laced Side Pad Mask

No.		Each
35	Neck Protecting Mask Finest Cold Drawn Enameled Steel, Burnished and Copper Plated, Complete With Patent Pneumatic Cushions, Overhead Strap, In Quality and Durability, this Mask is Not excelled,	$3 50
31	Neck Protecting Mask Extra Heavy Steel Wire, Black Enameled, Laced Hair Filled Leather Pads, Special Overhead Strap,	3 00
25	Special League Mask Good Weight Cold Drawn Steel Wire, Black Enameled, Special Laced Side Pads of Selected Leather and Hair Filled; Has Over-head Strap,	$2 50
22	Extra Weight Steel Wire Annealed and Black Enameled, Soft Tan Leather, Hair Filled Laced Side Pads, New Elastic Overhead Strap,	2.00

No. 18

Nos. 20, 15, 12

No.		Each
20	Heavy Black Enameled Wire, Good Quality Hair Filled Leather Side Pads, Leather Chin and Fore-head Pieces, Overhead Strap,	$1 50
18	Sun Shade Mask, Heavy Black Enameled Steel Wire New One Piece Pad and Overhead Strap,	1.25
15	Heavy Annealed Wire, Reinforced Joints, Black Enameled, Leather Padded, Leather Chin and Forehead Pieces,	1.00

No. 10

No.		Each
12	Youths' Mask, Good Weight, Black Enameled Wire, Reinforced, Double Side Pads, Chin and Forehead Pieces of Leather,	$0 75
10	Good Weight Black Enameled Wire, Double Leather Pads, Correct Size and Weight,	.50
5	Boys' Mask Made of Bright Wire, With Continuous Leather Faced Side Pads,	.25

TOE AND HEEL PLATES.

Toe Plate

Heel Plate

Pitcher's Toe Plate

No.		Per Pair
OT	—Toe, Special, Extra Fine Tempered Steel,	$0.50
OH	—Heel Special, Extra Fine Tempered Steel	.50
2T	—Toe, Professional, Fine Quality Blued Steel,	.25
2H	—Heel, Professional, Fine Quality Blued Steel,	.25
7T	Toe, Amateur, Good Quality Blued Steel	.10
7H	—Heel, Amateur, Good Quality Blued Steel,	.10

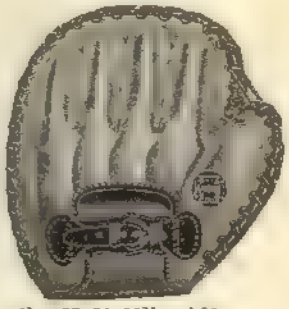
No		Each
1	—Polished Aluminum,	$0 25
2	Polished Brass	.25

Made for Right or Left Hand Shoe Specify which is Wanted."

Base Ball Goods

FIRST BASEMEN'S MITTS

Nos. 60, 59X, 58X and 58



Nos. 57, 54, 55X and 55

No.		Each
60	—Goldsmith Special, Made of Finest Oil Tan Calfskin, Best Felt Padding, Full Laced, Pocket Back, Wrist Strap and Buckle,	$4.00
59X	—Finest Quality Velvet Tanned Drab Buckskin, Full Laced, Best Felt Padding, Pocket Back, Wrist Strap and Buckle,	3.50
58X	—Olive Calfskin, Padded With Best Felt, Full Laced, Pocket Back, Wrist Strap and Buckle,	3.00
58	—Selected Black Calfskin Front, Back and Pocket of Black Cordovan Kid, Felt Padding, Full Laced Edge, Pocket Back, Wrist Strap and Buckle,	2.50
57	—Professional Pattern, Palm of Finest Fire-Proof Calfskin, Balance of Best Selected Stock, Best Asbestos Padding, Made With Latest Improvements, Full Laced Edge,	$2.00
54	—Same Design as Professional Model, Finest Smoked Horsehide with Back and Fingers of Tan Kid Leather, Full Laced Edge, Deep Pocket, Strap and Buckle at Wrist,	1.50
55X	-Professional Size, Best Grade Black Cordovan Kid, Deep Pocket, Full Laced Edge, Strap and Buckle at Wrist,	1.25
55	—Drab Asbestos Palm, Selected Oak Tan Leather Back, Natural Deep Pocket, Full Laced Edge, Strap and Buckle at Wrist,	1.00

FIELDER'S MITTS

No.		Each
39	—Goldsmith Special, Finest Brown Calfskin, Newest Professional Pattern, Padded with Best Asbestos Felt, Full Laced Edge, Strap and Buckle at Wrist,	$3.00
38	—The Flexible, Finest Velvet Tanned Drab Buckskin Padded with Best Asbestos Felt, Double Sewed, Strap and Buckle at Wrist,	2.50
37	—Professional Pattern, Finest Pearl Calfskin Front, Balance Selected Tan Leather, Padded with Best Asbestos Felt, Full Laced Edge, Strap and Buckle at Wrist,	2.00
36	—Olive Calf Palm, Sage Green Kid Leather Back, Special Soft Flexible Felt Padding, Full Laced Edge,	1.50
35	—Professional Model, Smoked Sheepskin Palm with Back and Fingers of Brown Chrome Stock, Full Laced Edge, Selected Felt Padding,	$1.25
34	—Drab Asbestos Buck Front, Selected Tan Kid Leather Back, Full Laced Edge, Strap and Buckle at Wrist, Flexible Felt Padding,	1.00
32	—Black Cordovan Kid Leather, Formed so as to make a Natural Deep Pocket, Strap and Buckle at Wrist.	.75
51	—Drab Buck-finished Horsehide, Deep Pocket, Strap and Buckle at Wrist,	.50

THE BATES-CORLISS EXTRA HEAVY DUTY ENGINES.

FIG. 2283

For Electric Lighting, Street Railways and Rolling Mills. Built in all sizes from 200 H.P. to 5,000 H.P. Simple or compound. Belted or direct connected to generator.

FIG. 2284.

Has no superior in economy, regulation and durability. Frame of great strength with broad bearing on foundation. Working surfaces of extra large area—the ideal engine where severe and continuous duty is required. Send for catalogue.

ENGINES—Continued.

HORIZONTAL SINGLE CYLINDER SIDE CRANK AUTOMATIC ENGINE.

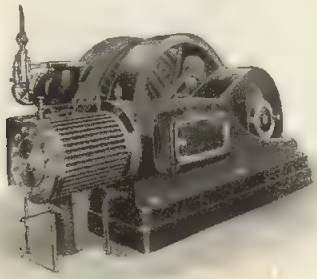


FIG. 2285

Direct connected to generator. Built in sizes between 150 and 600 horse-power.

HORIZONTAL CORLISS SIDE CRANK CROSS COMPOUND ENGINE.

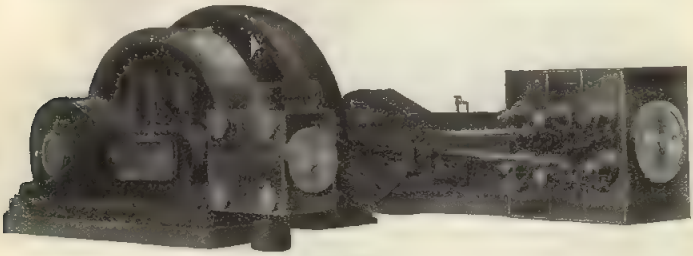


FIG. 2288

Direct connected to generator. Built in sizes between 300 and 1200 horse-power.

WRENCHES—Continued.

BAXTER "S" WRENCHES.

FIG. 1144

Size	Inches	4	6	8	10	12
Price	Per dozen	8C 00	9 00	12.00	18.00	24 00

ADJUSTABLE "S" WRENCH.

FIG 1145.

Size	Inches	8	10	12	14
Open	Inches	1	1⅜	1⅝	2
Price	Per dozen	89 00	12 00	15 00	21 00

ALLIGATOR WRENCHES.

FIG. 1146.

FIG. 1147

Size	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	Twin	Pocket
	Inch	Inch.	Inch	Inch	Inch	Inch	Inch
Holds Pipe	⅛ to ½	⅜ to ¾	¾ to 1¼	1¼ to 2	2 to 3	⅛ to ¾	...
Holds Round Iron	⅛ to ⅜	½ to 1	¾ to 1⅛	1 to 2½	2½ to 3½	¼ to 1	...
Length	7¾	10	16	22	27	10	4
Price Per doz.	$4 00	12.00	24.00	36.00	54 00	18.00	3 60

"ALWAYS READY" WRENCH.

FIG. 1148.

No. 1.	Takes nut or pipe ¼ to ⅜ inch	Per dozen,	$ 5 00
No. 2.	Takes nut or pipe ¼ to 1¼ inch	"	6 75
No. 2½	Takes nut or pipe ¼ to 1½ inch	"	10 50
No. 3.	Takes nut or pipe ½ to ¾ inch	"	16 00
No. 4.	Improved; takes all nuts on a bicycle	"	5 00

WRENCHES—CONTINUED.

STRUCTURAL WRENCHES.

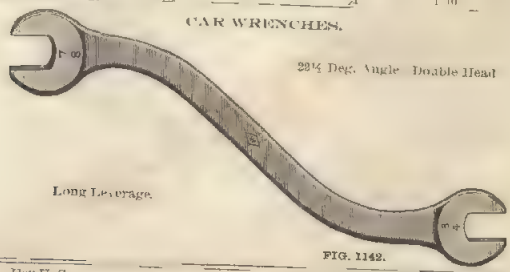
STRAIGHT OPENING.

FIG. 1141.

Number	For U. S. Standard Nut, Size Bolt	Opening	Extreme Length.	Thickness Head	Price, Unfinished.	Price, Semi-finished.
523	⅝	⅝	9	¾	$0 80	$0 80
525	¾	¾	11¾	⅞	82	48
526	⅞	1	12¾	1	84	90
527	1	1⅛	14⅛	1⅛	56	76
528	1⅛	1¼	16	1¼	65	97
529	1¼	1⅜	17½	1⅜	85	1 28
530	1⅜	1½	19	1½	1 10	1 65

CAR WRENCHES.

22½ Deg. Angle Double Head



Long Leverage.

FIG. 1142.

Number	For U. S. Standar Nut: Size Bol.	Opening.	Extreme Length.	Thickness Head	Price, Unfinished.	Price, Semi finished.
367	⅝ and ½	½ and ⅝	12	⅞ and ½	$0 50	$0 75
371	½ " ⅝	⅝ " ⅞	19	½ " ⅝	85	1 28
372	⅝ " ¾	⅞ " 1	19	⅝ " ¾	85	1 28
373	¾ " ⅞	1 " 1⅛	20	¾ " ⅞	92	1 38
374	⅞ " 1	1⅛ " 1¼	20	⅞ " 1	92	1 38
375	⅞ " 1	1⅛ " 1¼	21	⅞ " 1	1 00	1 50
376	1 " 1⅛	1¼ " 1⅜	21	1 " 1⅛	1 00	1 50
377	1 " 1⅛	1⅜ " 1½	21	1 " 1⅛	1 00	1 50
378	¾ " 1⅜	1⅜ " 1½	22	¾ " 1⅜	1 10	1 65
379	1 " 1⅜	1⅜ " 1½	22	1 " 1⅜	1 10	1 65
380	⅞ " 1⅜	1⅜ " 1½	22	⅞ " 1⅜	1 10	1 65
381	⅞ " 1⅜	1⅜ " 1½	23	⅞ " 1⅜	1 21	1 85
382	1 " 1⅜	1⅜ " 2⅛	23	1 " 1⅜	1 23	1 85
383	1 " 1⅜	1⅜ " 2⅛	23	1 " 1⅜	1 23	1 85
385	1⅛ " 1⅜	2⅛ " 2⅜	24	1⅛ " 1⅜	1 40	2 10

CARRIAGE MAKERS' WRENCH.

General Service—Long and Light.

22½ Degree Angle—Double Head

No.	For Manufacturers' Standard Nuts, Sizes Bolts	Openings Milled	Extreme Length	Thickness Heads	Price, Unfinished	Price, Semi-finished	Price, Finished
475	⅜ & ½	½ & ⅝	11¼	⅜	$0 13	$0 20	$0 26
477	½ & ⅝	⅝ & ¾	14⅜	½	17	25	34
479	⅝ & ¾	¾ & ⅞	18	⅝	22	33	44
481	¾ & ⅞	⅞ & 1	21¾	¾	28	42	56
483	⅞ & 1	1 & 1⅛	25½	⅞	44	51	68

FIG 1143.

Track Levels.

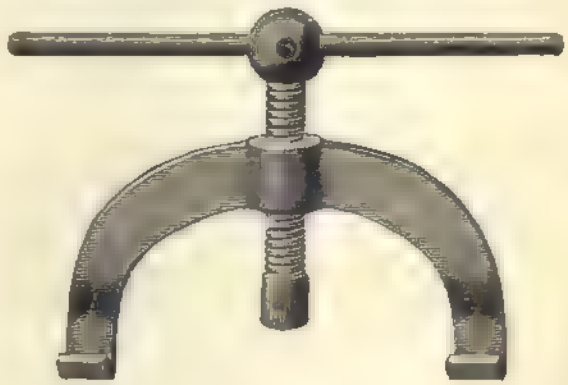
Code Adauxutl. Each
No. 7—Railroad Track Level, 1¼ x 5 In., 6½ Ft. Long, ... $3.50
Weight, 13½ lbs. Each.

Steel with Steel Spirit Glass [illegible]

Rail Tongs

Code Adauxl. Each
No. 5—Solid Cast Steel, ... $4.00
Average Weight, 15 lbs. Each.

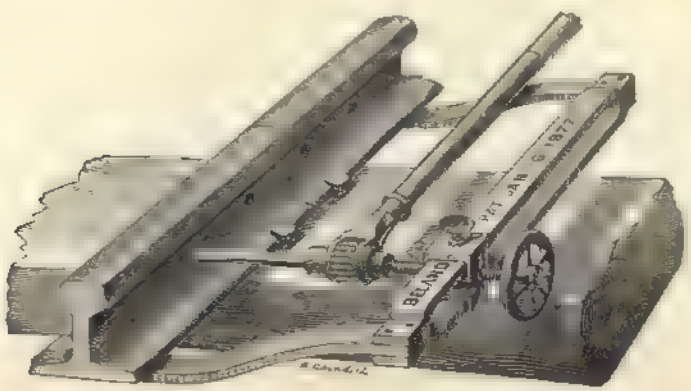
Rail Benders or Jim Crows.



Code Adazas. Each
No. 20—Span 22 In., Diam. of Screw 2¼ In., For Iron Rail up to 55 lbs. Steel Rail to 45 lbs., ... $35.00
Weight, 98 lbs. Each.

Track Gauges.

Code Adaxint. Each
No. 10—Huntington Track Gauge, ... $3.00
Weight, 12 lbs. Each.



Track Drills.

Code Adbeslnus Each
No. 22—Beland's Wrought Iron Frame Cast Steel and Malleable Iron Ratchet. $12.00
Weight, 26 lbs. Each.

Berk-shire

Side Entrance Tonneau, Four Cylinder, Water Cooled

Light Touring Model A, 18 Horse Power . . . . . Price **$2,000**
Touring Model B, 30 " " . . . . . " **2,500**

Berkshire Automobile Co.

Pittsfield, Mass., U. S. A.

Write for Catalogue before placing your order for your cars.

DEALERS—TAKE NOTICE

The **GALE** Price, **$500.00**

WILL BE A GOOD THING FOR 1906

Do not make up your entire line, before getting our proposition.
Think of the sales you can make of a good $500.00 car.
Correspondence will help us both—WRITE.

THE WESTERN TOOL WORKS, GALESBURG, ILL.

ELIMINATE ALL IGNITION TROUBLES

BY USING THE

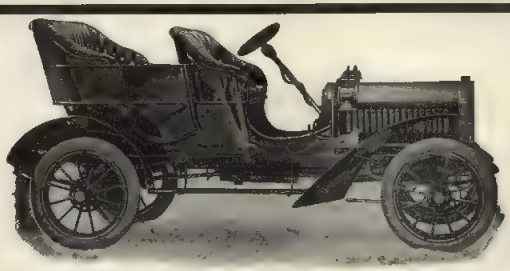
Witherbee Storage Battery Igniter

EXCLUSIVELY ON YOUR 1906 CAR

Every battery Guaranteed to give satisfaction or purchase money refunded.
Now used and endorsed by thirty five of the leading manufacturers.
Write for descriptive pamphlet.
Electros furnished jobbers.

Witherbee Igniter Company

26 THAMES ST., NEW YORK



THE PUNGS-FINCH

FOUR-CYLINDER. 22 H. P. SLIDING GEAR TRANSMISSION. BEVEL GEAR DRIVE, (DOUBLE SIDE DOOR) $1850.00. (20 H. P. END DOOR) $1700.00. Stands alone in its class. Is the only Four-Cylinder, Bevel Drive Car at less than $2500, that was in use by customers all last season and thoroughly tested out. You don't buy an experiment when you purchase one of these cars. Plenty of power and exceedingly flexible of control. Catalogue for full description.

PUNGS-FINCH AUTO & GAS ENG. CO., Detroit, Mich.

New York Rep.—C. A. Duerr Co. Philadelphia—The Motor Shop

Berk-shire

Side Entrance Tonneau, Four Cylinder, Water Cooled

Light Touring Model A, 18 Horse Power . . . . . Price **$2,000**
Touring Model B, 30 " " . . . . . " **2,500**

Berkshire Automobile Co.

Pittsfield, Mass., U. S. A.

Write for Catalogue before placing your order for your cars.

Price **$500.00**

The **GALE**

Save money when you can, but get quality always. You'll do both, if you buy the **GALE Runabout.** It is the best value on the market. 8 H. P., 5x6" water cooled motor, with tilting body that allows easy access to the machinery. Every car is equipped with our new twelve gear transmission. Material and workmanship guaranteed for one year. Printed matter on application.

WESTERN TOOL WORKS **Galesburg, Ill., U. S. A.**

One Man Cross Cut Saws

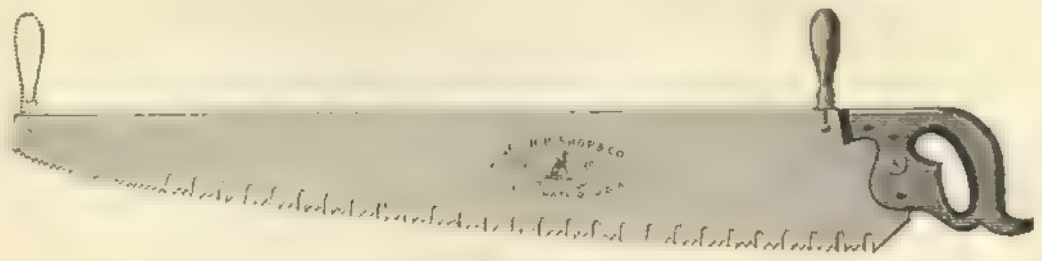
Olympic

Thin Back, Fast Cutting, Hand Filled, Four Cutting Teeth to each Raker

Length, Feet	3	3½	4	4½	5	5½
Weight, each, Pounds	3¼	4	4¾	5¾	6½	7¼
Each.	$2 55	3.00	3.40	3.90	4.35	4 75

Champion Tooth

Length, Feet	3	3½	4	4½	5
Weight, each, Pounds	3¼	4½	5	6	7
Each.	$2 25	2 60	3 00	3.35	3.70



Great American

Length, Feet	3	3½	4	4½	5
Weight, each, Pounds	3	3¾	5	6	7
Each.	$2 55	2 85	3 25	3 65	4.10

Ice Saws

		Per Doz.
640	Length, 30 in., with Wood Handle	$14.40

Hand, Rip and Panel Saws

OLYMPIC

Skew Back, Fully Warranted

Extra Refined Spring Steel, Highly Finished, Full Taper Ground Blade, Hand Filed and Set, Carved and Polished Applewood Handles, Four Brass Screws

		Per Doz.
Panel	18 in., 8 to 12 Points	$18 00
	20 in., 8 to 12 Points	20 00
	22 in., 8 to 12 Points	22.00
	24 in., 8 to 12 Points	24.00

One-Third Doz. in a Box

		Per Doz.
Hand	26 in., 6 to 12 Points	$26 00
Rip	—26 in., 4½ to 6 Points	26 00

ALKI

Skew Back

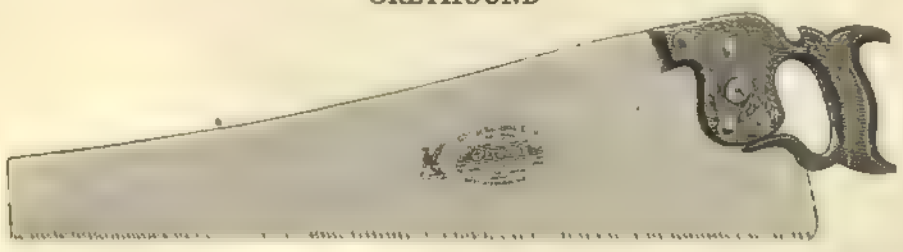
Extra Cast Steel, Polished Blade, Filed and Set, Beechwood Handles Polished Edges, Four Brass Screws

		Per Doz.
Panel	18 in., 8 to 10 Points	$12 00
	20 in., 8 to 10 Points	13.00
	22 in., 8 to 10 Points	14.00
	24 in., 8 to 10 Points	15.00

One-Third Doz. in a Box

		Per Doz
Hand	26 in., 6 to 9 Points	$16 00
Rip	—26 in., 5 and 5½ Points	16.00

GREYHOUND



Made from Special Greyhound Steel, Highly Finished, Carved Applewood Handles, Five Nickel Plated Screws

		Per Doz.
Hand	-26 in., 7 to 12 Points	$36 00

One-Twelfth Doz. in a Box

		Per Doz
Rip	26 in , 5 to 5½ Points	$36 00

DRESSED DOLLS—Continued.

We do not Break Packages.

3271-22½ Baby Doll. Dressed in long white crinoline dresses with lace trimmed collar and long ribbon bows, bonnet trimmed with ribbon bow to match dress, movable bisque head, Rembrandt hair, glass eyes, movable paper mache arms and legs. Height, 17½ in. ½ dozen assorted in box.

Per doz., $2.25

3272-22½

3273-23½

3272-22½ Holland Girls. Dressed in Holland style, mercerized cotton skirt with white apron, black flannel corsage, lace trimming around neck and arms, movable bisque head, glass eyes, Rembrandt hair, movable paper mache arms and legs, painted shoes and stockings, straw hat trimmed with flowers. Height, 9 in. ½ dozen in box. **Per doz., $2.25**

3273-23½ Dressed Doll. Swiss dresses trimmed around bottom with lace edging, large lace yoke, bisque head, Rembrandt hair, glass eyes, movable paper mache arms and legs, painted shoes and stockings, bonnet trimmed with large ribbon bow to match dress, gilt necklace and charm. Height, 10 in. ½ dozen assorted in box.

Per doz., $2.25

3274-22½ Hunting Dolls. Flannel jacket and trousers of different colors, wool cap, bisque head, curly hair and glass eyes, movable paper mache arms and legs, metal gun and game bag. Height, 10 in. ½ dozen assorted in box.

Per doz., $2.25

3275-23½ Dressed Doll. Cambric dress with lace overskirt and lace revers, bisque head, with Rembrandt hair and glass eyes, movable paper mache arms and legs, painted shoes and stockings, lace bonnet trimmed with flowers Height, 10 in. ½ dozen in box.

Per doz., $2.25

3276-23½ Japanese Doll. Dressed in print cloth Japanese designs, bisque head, with Rembrandt hair and glass eyes, movable paper mache arms and legs. Height, 9 in. ½ dozen in box.

Per doz., $2.25

3277-23½ Dressed Doll. Bisque head with Rembrandt hair and glass eyes, movable paper mache arms and legs, painted shoes and stockings, white flowered Swiss dress with large lace collar, ruffled hat to match dress. Height, 10 in ½ dozen asorted in box.

Per doz., $2.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

We do not Break Packages.

3278-22½ Dressed Doll. White Swiss dress with lace around bottom, tied at waist with colored bow, collar trimmed with lace and colored cord, bisque head, with Rembrandt hair and glass eyes, movable paper mache arms and legs painted shoes and stockings, each doll carries small basket filled with fruit. Height, 10 in. ½ dozen in box.
Per doz., $2.25

3284 22½ 3285-22½

3284-22½ Dressed Doll. Turning bisque head, Rembrandt hair, closing eyes, movable paper mache hands and feet, shoes and stockings, mercerized cotton dress, lace trimmed ruffled collar, hat to match dress. Height, 12 in. Each in box. ½ dozen assorted in pkg.
Per doz., $2.25

3285-22½ Dressed Doll Movable bisque head, Rembrandt hair, glass eyes, shoes and stockings, movable paper mache hands and feet, sateen dress with large lace yoke and bow, hat to match dress. Height, 13 in. Each in box. ½ dozen assorted in pkg
Per doz., $2.25

3292-22½ 3293-22½

3292-22½ Dressed Doll. Bisque head, Rembrandt hair, glass eyes, paper mache hands, imitation kid body with flexible hip joints, shoes and stockings, pique dress with blouse waist trimmed with braid. Each in box. ½ dozen assorted in pkg
Per doz., $2.25

3293-22½ Dressed Doll Bisque head, Rembrandt hair, glass eyes, imitation kid body, shoes, lace stockings, near-silk dress with large ruffle, round yoke, trimmed with lace and ribbon bow, ruffled hat to match dress. Height, 12½ in. Each in box. ½ dozen assorted in pkg
Per doz., $2.25

3282-22½ 3283-22½

3282-22½ Dressed Doll Movable bisque head with curly hair and glass eyes, movable paper mache arms and legs, red shoes and stockings sateen dress with large lace yoke and ribbon bow, large hat trimmed with lace to match dress. Height, 13½ in. Each in box. ½ dozen assorted in pkg.
Per doz., $2.25

3289-22½ 3291-22½

3289-22½ Dressed Doll. Movable bisque head, Rembrandt hair, closing eyes, open mouth showing teeth, mercerized cotton dress with lace yoke, shoes and stockings, large hat to match dress. Each in box. ½ dozen assorted in pkg
Per doz., $2.25

3294-22½ 3301-25

3294-22½ Dressed Doll. Bisque head, Rembrandt hair, glass eyes, paper mache hands, imitation kid body with flexible hip joints, lace stockings and shoes, colored print dress with lace revers and blouse waist, large lace hat, Height, 13 in. Each in box. ½ dozen assorted in pkg.
Per doz., $2.25

3283-22½ Dressed Doll. Turning bisque head, Rembrandt hair, closing eyes, mercerized cotton dress with collar trimmed with braid and ribbon bows. large lace yoke, movable arms and legs, shoes and stockings, lace trimmed hat Height, 12 in. Each in box ½ dozen assorted in pkg
Per doz., $2.25

3291-22½ Dressed Doll. Bisque head, Rembrandt hair, glass eyes, paper mache hands, imitation kid body with flexible hip joints, pique dress with ruffle collar trimmed with ribbon bow, hat to match dress. Height, 13 in. Each in box. ½ dozen assorted in pkg
Per doz., $2.25

3301-25 "The Girl in Red." Turning bisque head, closing eyes, Rembrandt hair, moving limbs, red pleated Panama dress, large collar trimmed with silk, red hat trimmed with silk edging and silk bows, red shoes and stockings Height, 10½ in. Each in box ½ dozen in pkg
Per doz., $2.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Laib Co.
773
Louisville Ky

BLOW PIPES.

FIG. 2098.
No. 1.

FIG. 2099.
No. 2.

Length.....inches	7	8	9	10
Price No. 1.....per dozen	1.50	2.00	2.50	3.00
Price No. 2.....per dozen	3.00	4.00	5.00	6.00

BRAZING BLOW PIPES.

FIG. 2100.
No. 8 B.

FIG. 2101.
No. 8 F.

Number.....	8B	8C	8E	8F
Air Jet.....inches	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{16}$
Gas Supply.....inches	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price.....each	1.75	2.50	3.50	4.25

Nos. 8 C, E and F have two lever stop cocks. Nos. 8 B and C require Nos. 9 A or 10 A Foot Blower. Nos. 8 E and 8 F require Nos. 9 B or 10 B Foot Blower.

FIG. 2102.
Nos. 9, 9A or 9B.

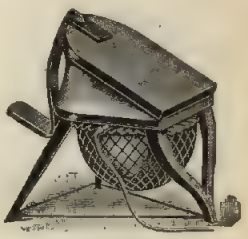


FIG. 2103.
Nos. 10, 10A or 10B.

Foot Blowers.

Number.....	9	9A	9B	10	10A	10B
Price.....each	4.00	5.00	7.00	5.00	6.00	8.00

GASOLINE AND GAS SOLDERING IRON HEATERS, ETC.

GASOLINE SOLDERING IRON HEATER.

FIG. 2104.
No. 95.

GAS OR GASOLINE SOLDERING IRON HEATER.

FIG. 2105.
No. 18B.

Gasoline and Gas Soldering Iron Heaters.

Price, No. 95 Gasoline Soldering Iron Heater	each	7.00
Price, No. 18 B Gasoline Soldering Iron Heater	each	1.45
Price, No. 18 B Gas Soldering Iron Heater	each	1.25

COMBINATION GAS MELTING AND SOLDERING IRON HEATER.

FIG. 2106.
No. 18A.

GAS TOOL FORGE.

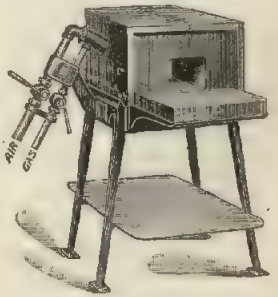


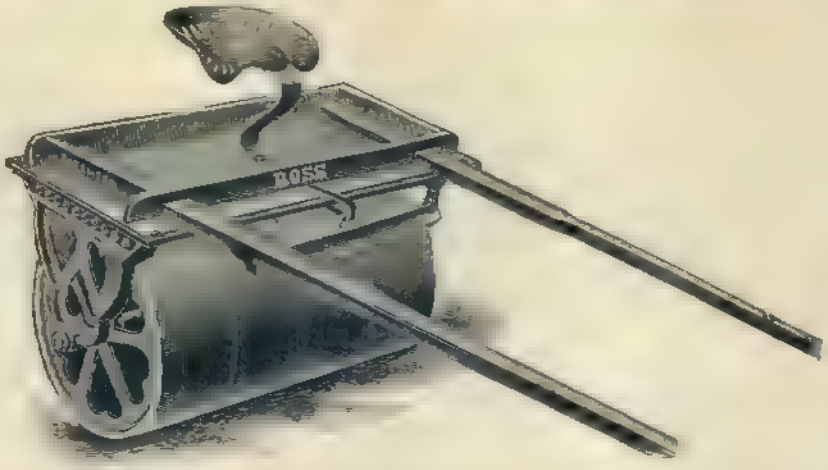
FIG. 2107.
No. 19.

Price, No. 18 A Combination Gas Melting and Soldering Iron Heater	each	2.75
Price, No. 19 Gas Tool Forge	each	10.00

Dimensions of Gas Tool Forge.

Fire Box: 9 inches long, 7 inches wide and 6 inches high. Frame 12 inches high.

"BOSS" GOLF FIELD AND LAWN ROLLERS.



One-horse Golf and Lawn Rollers.

No	Diameter	Length.	Sections.	Face.	Weight.	Mfrs. Prices	Our Net Prices
40	24 in.	30 in.	3	10 in.	650 lbs.	$58.00	$52.00
41	24 "	40 "	4	10 "	800 "	[illegible]	61.00
42	24 "	50 "	5	10 "	950 "	78.00	[illegible]

Two-horse Field Rollers.

72	24 in.	5 ft.	5	12 in.	1450 lbs.	$89.00	$80.00
70	28 "	6 "	6	12 "	1950 "	117.00	105.00

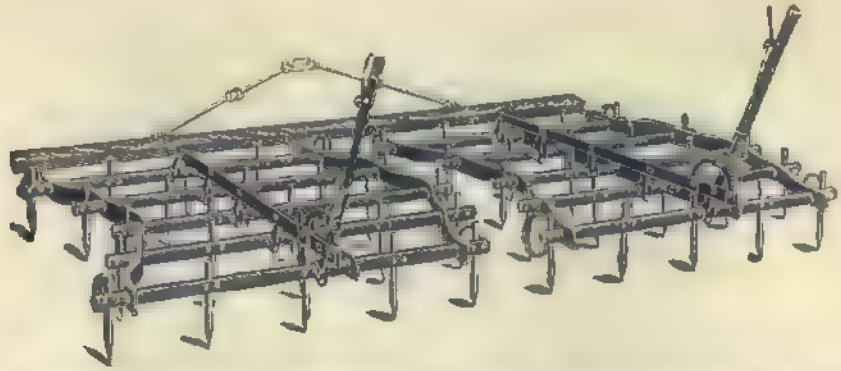
"BOSS" ROAD AND GOLF GROUND ROLLERS.

No	Diameter	Length	Sections	Face.	Weight.	Mfrs. Prices	Our Net Prices.
80	36 in.	4 ft.	4	12 in.	3000 lbs.	$188.00	$170.00
81	36 "	5 "	5	12 "	3500 "	214.00	192.00
82	36 "	6 "	6	12 "	4000 "	240.00	216.00
83	48 "	3½ "	3	15 "	4000 "	248 00	223.00
84	48 "	5 "	4	15 "	5000 "	304.00	273.00
85	48 "	6½ "	5	15 "	6000 "	360.00	324.00
86	54 "	3½ "	3	15 "	6000 "	368.00	331.00
87	54 "	5 "	4	15 "	8000 "	484.00	430.00
88	54 "	6½ "	5	15 "	10000 "	600.00	540.00

Whiffletrees and Neck Yoke extra, per set, $6.00.

We want to call attention to the fact that our price list on Rollers is lower than that of any other manufacturer. The weights given are not estimated, but are the actual weights of the Rollers, every Roller weighing the number of pounds put down in the list. For description of "Boss" Rollers for Hand Power see page 124.

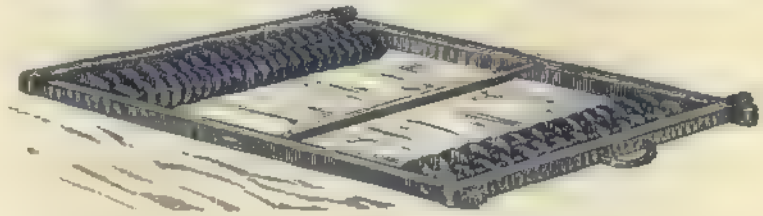
SPIKE TOOTH LEVER HARROW.



Steel-Bar Lever Harrows represent the best class of harrowing implements ever offered to the farmer, and are fast superseding all other varieties for general farm work. By the use of the lever any desired angle can be given to the teeth forward ↖ to dig into the ground; upright | like the common wood frame harrow, or backward ↗ to smooth: or level — for transportation or for use as a land leveller.

3 Section with Draw Bar, 90 teeth, ⅝ in.	Mfrs. price, $21.00	Our net price, $20.00
" " " 60 " "	" " 14.00	" 13.35
" " " 30 " "	" " 7.00	" 6.65

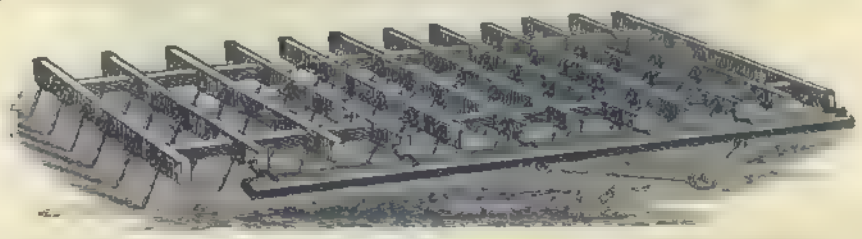
THE MEEKER SMOOTHING HARROW.



Designed especially for Market Gardeners' Work.

Mfrs. price . . . . . each, $25.00 Our net price . . . . each, $22.50

THE IMPROVED REVERSIBLE SMOOTHING HARROW.



Two-section Harrows, forty-eight ½-inch steel teeth, 7 feet spread, ...	Mfrs. Price, $13.50	Our Net Price, $12.00
Three-section Harrows, seventy-two ½-inch steel teeth, 10½ feet spread, ...	" " 20.25	" 18.00

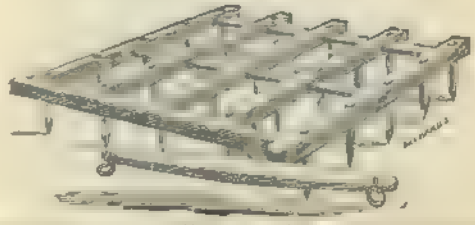
COMMON A HARROW.

11 Teeth, ⅛ in. .	Mfrs. price, $6.00	Our net price,	$5.40
13 " " .	" 7.00	"	6.30
15 " ⅜ in.	" 9.00	"	8.10
15 " 1" Ex. Heavy	" 14.00	"	12.60
17 " ⅜ " . .	" 14.00	"	12.60

HARROW TEETH, ETC.

We carry in stock extra Teeth and Discs for nearly every style harrow manufactured. To insure orders being correctly filled send broken part or diagram of same. Prices on application.

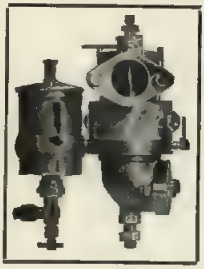
SQUARE HARROWS.



25 Teeth, ½ in.	Mfrs price $8.00	Our net price	$7.00
25 " " with runners	" 9.50	"	8.00

THE BRADFORD MOTOR WORK'S

1906 CARBURETOR



is not the freak of a sudden inspiration, but is the result of many years' study and practical experience in the manufacture of carburetors. For five years we have been engaged in the manufacture of the famous **Longuemare Carburetor,** and many of its good points are combined with our own ideas. The result is a superior automatic carburetor.

Automobile Manufacturers:

Do you intend to use the same old carburetor that gave you trouble last year? If you buy your supply of carburetors before you try ours, you will run the risk of being disappointed. It has more good points than any other carburetor on the market, and we stand ready at any time to substantiate all the claims we make for it. Let us hear from you now.

BRADFORD MOTOR WORKS

BRADFORD, PA.

The Solution of the Automobile Tire at last?

Voorhees Automobile Cushion Tires

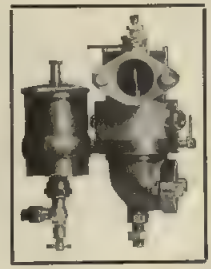
Ride like pneumatic Wear like solid
Without diminishing speed

Voorhees Rubber Mfg. Co.

18 to 40 Bostwick Avenue
JERSEY CITY, N. J.
TIRE DEP'T: 303 W. 54th Street, New York City

THE BRADFORD MOTOR WORK'S

1906 CARBURETOR



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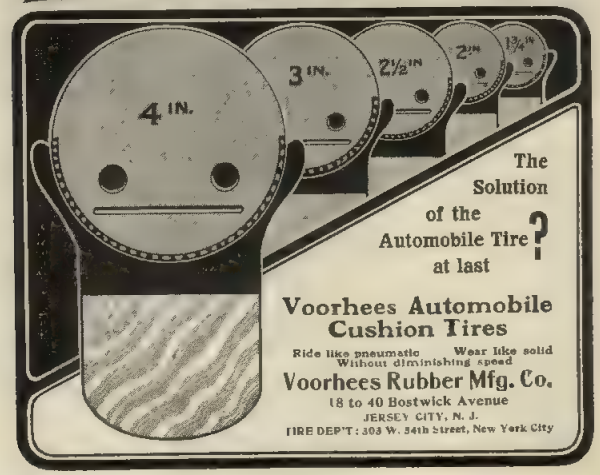
BRADFORD MOTOR WORKS

BRADFORD, PA.



The Solution of the Automobile Tire at last?

Voorhees Automobile Cushion Tires

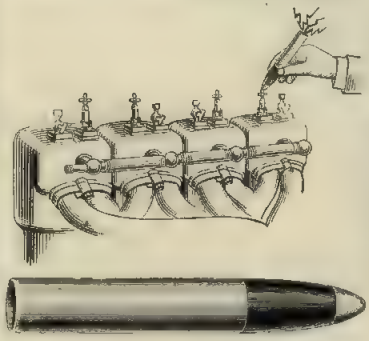
Ride like pneumatic Wear like solid
Without diminishing speed

Voorhees Rubber Mfg. Co.

18 to 40 Bostwick Avenue
JERSEY CITY, N. J.
FIRE DEP'T: 303 W. 54th Street, New York City

SMITH'S SPARK TESTER

OR SKIP FINDER



This little instrument is of great value to all motorists. By its use they are enabled to ascertain the nature and intensity of the spark which is occurring at the sparking point of the spark plug, while the plug is in the cylinder and under compression, thereby doing away with the necessity for removing the spark plug from the cylinder and testing same and trying another plug to see if any trouble they may have is due to a fouled or imperfect spark plug.

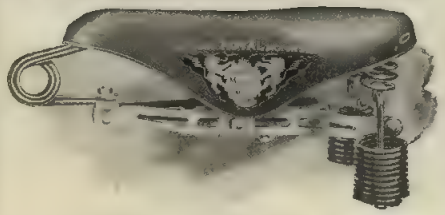
Price, $2.00

SAMPLE MAILED PREPAID

MANUFACTURED BY

Duck Brake Co., 335 Broadway, N. Y.

PERSONS 1906 MOTOR SEAT



No Rebound

Anti-Vibratory

Anti-Concussion

Sans-Oscillation

Bumpus-Non

"A SPRING ABOVE A SPRING"

THAN WHICH THERE IS NONE SO GOOD

Persons Manufacturing Co.

WORCESTER, MASS., U. S. A.

HOUSEHOLD AND DAIRY THERMOMETERS

Fig. 8

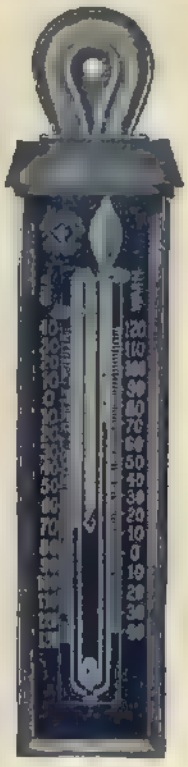


Fig. 3

Fig. 5

Fig. 4

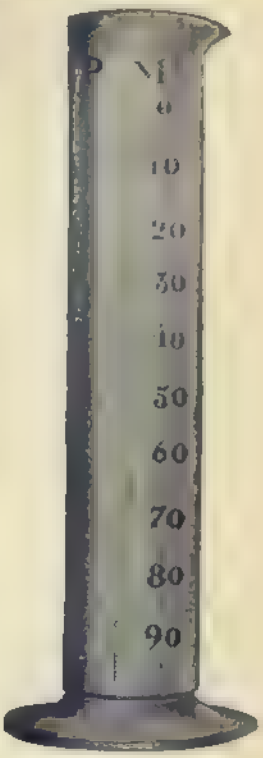


Fig. 6

Fig. 2

Fig. 9

Fig. 10

All Barometers, Thermometers, etc., shown on this page are instruments of extreme precision, and are not to be confounded with cheap, unreliable goods usually offered. We guarantee their accuracy for either household or dairy purposes.

Standard Tin Case Thermometer.

Fig 2.	Standard Tin Case Thermometer, 8 in., each	$0.65	By mail,	$0.75
	" " " 10 in., "	.75	" "	1.00
	" " " 12 in., "	1.00	" "	1.25

Brass Case Aneroid Barometers.

Fig. 8.	Brass Case Aneroid Barometers, Plain, each	$10.00
	" " " " with Thermometer, each	12.00

Barometers cannot be sent by mail.

Hot Bed Thermometers.

Fig. 9.	Hot Bed Thermometers registering to 180° and over, each	$1.75	By mail, $2.00

Sixe's Self-Registering Thermometer.

Fig. 3.	Sixe's Self-Registering Thermometers. Maximum and minimum, *i. e.* showing the extremes of heat and cold accurately, each	$2.50	By mail, $2.75

Floating Dairy Thermometer.

Fig. 4. Floating Dairy Thermometers, good quality, each, $0.25, by mail, $0.30. Guaranteed accurate, each, $0.40 By mail, $0.50

Flange Dairy Thermometer.

Fig. 5.	Flange Dairy Thermometer 7 in., each	$0.50	By mail, $0.60
	" " " 8 in., "	.00	" " 70

Cream Gauges.

Fig. 6.	Graduated Cream Gauge, 0-30 size, 10 x 1¼ for determining percentage of cream, each	$1.00	By mail, $1.25
	Cream Gauges with Japanned Tin Stand, per set		2.00
	Cream Gauges or Test Tubes less stand, each		.50

Cream Gauges cannot be sent by mail.

Lactometers.

Fig. 10.	Lactometer, each in a turned wood case, each	$0.75	By mail, $0.85

BRECK'S IMPROVED SWING STANCHION.

This Stanchion gives as perfect freedom to cattle as it is possible to have and have them fastened at all. The cattle when standing can lap themselves as when loose, and when lying down they can rest the head upon the body as when in pasture.

There is no friction on the neck, as the Stanchion turns with the head. It keeps them as clean as the firm Stanchion and there is no possible way they can get hurt, neither can they get to the right or left to gore each other.

The cattle cannot waste their feed and do much better than when tied with any other Stanchion. No getting choked or getting unfastened.

Thousands are in use. Every dairyman who has used them approves them and adopts them exclusively.

Breck's Improved Stanchion . . . . . Mfrs. price, each, $1.75 Our net price, each, $1.35

BUCKLEY'S PATENT WATERING DEVICE.

It has come to be regarded as a matter of necessity for the proper caring of stock, while in the stable, that they should have constant access to the water of suitable temperature.

The water is of same temperature as the stable consequently they are never chilled by drinking ice-cold water, and no extra feed is required to raise the temperature to its normal condition. It therefore saves feed.

The above illustration shows the general application of this system, but a brief description will be necessary to demonstrate its importance, usefulness and simplicity. On application will mail descriptive catalogue with testimonials, etc.

No. 2 Stanchion Basin with Valve . . . . . Mfrs. price, each, $1.70 Our net price, each, $1.35

PERFECT COW TAIL HOLDER.

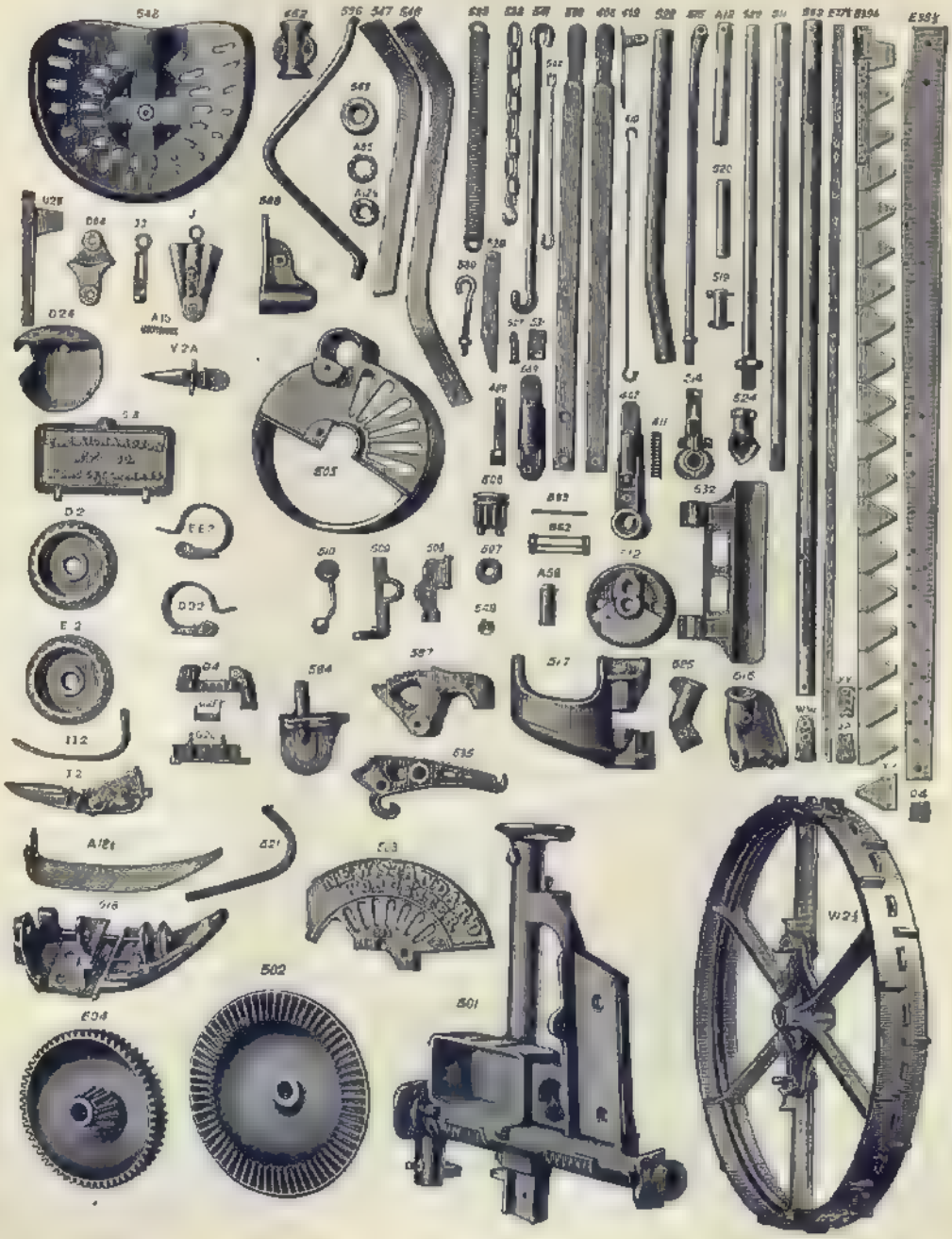
The Perfect Cow Tail Holder is the only practical device which will absolutely prevent a cow from switching her tail during milking. Its very simplicity commends it to every dairy man. Try it and you will not milk without one for twenty times its cost.

Our net price by mail, each, . . $0.10 Our net price per doz., by mail, . . . $1.00

NEW STANDARD BUCKEYE MOWERS.

4½, 5 and 6 feet.

Net Price List of Duplicate Parts.



501	Main Frame	$8.00	513	Tool Box Cover	$0.25	524	Back Brace Socket, rear	$0.35
502	Bevel Gear	2.50	514	Pitman Box, complete	1.50	525	Back Brace Clip, front	.50
503	Bevel Gear Guard	.50	515	Pitman Rod	.75	526	Gag Lever	.25
504	Spur Gear	2.00	516	Hinge Bar Socket	.75	527	Gag Lever Pin	.10
505	Spur Gear Guard	1.25	517	Hinge Yoke	2.50	528	Lifting Chain	.50
506	Spur Pinion	.60	518	Inside Shoe, 4½ and 5 ft.	2.50	529	Lifting Spring	.75
507	Clutch Collar	.20	518A	Inside Shoe, 6 ft.	2.50	530	Lifting Spring Hook Bolt	.15
508	Shipper Stand	.20	519	Short Hinge Pin	.15	531	Lifting Spring Bracket	.10
509	Shipper Clutch	.20	520	Upper or Lower Hinge Pin	.25	532	Pitman Guard	1.00
510	Shipper Lever	.20	521	Inside Divider Rod	.25	533	Bar Rest	.25
511	Crank Shaft (naked)	1.25	522	Hinge Coupling Shaft	1.50	534	Lever Axle	.75
512	Crank Balance (plain)	.75	523	Back Brace and Nut	1.25	535	Lever Arm	.50

NEW STANDARD GEAR BUCKEYE MOWER.

4½, 5 and 6 feet.

Net Price List of Duplicate Parts.

536	Foot Lever	$0 25
537	Tilter Ratchet	.50
538	Tilter Lever Handle	.50
539	Tilter Pawl Socket	.15
540	Tilter Trip Rod	.10
541	Tilter Hook Connection	.25
A	Axle Shaft, 4½ and 5 ft. (naked)	2 50
A2½	Axle Shaft, 6 ft (naked)	3 00
A43	Axle Sleeve, 4½ and 5 ft.	.10
A43	Axle Sleeve, 6 ft.	.10
W42A	Drive Wheel, 4½ and 5 ft	6 00
545	Drive Wheel 6 ft.	7 00
546	Main Seat Spring	.25
547	Seat Spring Leaf	.60
548	Seat	1 00
549	Oil Cup Cover	.05
550	Pole	3.00
46	Lifting Lever Handle	.50
107	Lifting Lever Handle Socket	.15
47A	Lifting Lever Pawl or Tilt Pawl	.20
109	Lifting Lever Hand Trip	.20
110	Lifting Lever Trip Rod	.10
111	Lifting Lever Pawl Spring	.10
457	Clamp Collar, complete	.30
A12	Spur Gear Stud	.50
A12½	Spur Gear Stud Washer	.05
A35	Axle Washer	$0 05
D24	Crank Fender	1 00
D1	Evener Plate	.20
D12	Left Hand Driving Ratchet	.75
E2	Right Hand Driving Ratchet	.75
DH12	Right Hand Pawl Spring	.40
EH2	Left Hand Pawl Spring	.40
I2	Outside Shoe	1 75
V4	Finger	.25
U2B	Scythe Head	.40
VV	Knife Sections, each	.06
WW	Scythe Button	.10
O4	Chafe Plate with Bolt	.20
II	Outside Shoe Runner	.40
	Track Clearer Sticks, each	.25
O4	Shoe Cap	.15
O4I	Inside Shoe Cap Hinge	.15
O4H	Shoe Cap Hinge Spring	.10
VV	Guard Finger Plate	.06
VA	Inside Shoe Plate (2 holes)	.06
A18½	Inside Shoe Runner	.50
D37	Scythe Rod, Drilled, 6 ft.	2 00
F37	Scythe Rod, Drilled, 5 ft.	1.75
F37½	Scythe Rod, Drilled 4½ ft.	1.50
D38	Finger Bar, Drilled, 6 ft. (naked)	6.00
F38	Finger Bar, Drilled, 5 ft. (naked)	5.00
E38½	Finger Bar, Drilled, 4½ ft. (naked)	$4 50
B39	Scythe U2B Head, 24 sections	3 50
B37½	Scythe U2B Head, 20 sections	3 00
B36	Scythe U2B Head, 18 sections	2 75
A50	Crank Pin	75
A58½	Cap Screw for A58	.10
O—	Roller Bearing Cage	30
B—	Roller Spindles, each	02
	Finger Bolts (steel)	.05
	Track Clearer Bolt	.05
	Bolts, common sizes, with Thimble	.08
	Rivets, short, per lb.	.15
	Rivets, long, per lb.	.20
	Oil Can	.15
	Cold Chisel	.25
	Punch	.10
	Linch-pin	.05
	Small Spring Cotters	.03
	Set Screws	.10
	Screw Wrench	.35
	Evener	.75
	Whiffletrees, each	.50
	Neck Yoke	1.00

NEW STANDARD GEAR BUCKEYE MOWER NO. 3.

3½ and 4 feet.

Net Price List of Duplicate Parts.

301	Main Frame	$7.00
302	Bevel Gear	2.00
303	Bevel Gear Guard	.50
304	Spur Gear	1 50
305	Spur Gear Guard	1 00
306	Spur Pinion	.50
307	Clutch Collar	.20
508A	Shipper Stand	.25
509A	Shipper Clutch	.25
510A	Shipper Lever	.25
311	Crank Shaft	1 00
312	Crank Balance	.60
313	Tool Box Cover	.25
713	Pitman Box	.50
301	Wood Pitman Rod, complete	1 50
316A	Hinge Bar Socket	.75
317A	Hinge Yoke	1.75
318A	Inside Shoe	1 00
319A	Shoe Pins	.15
320	Hinge Pin	.25
321	Inside Shoe Divider Rod	.25
322A	Hinge Bar	1 75
323	Back Brace and Nut	1 25
325	Back Brace Clip Front	.50
326	Grip Lever	.25
328	Lifting Chain	.50
329	Lifting Spring	.50
330	Lifting Spring Hook Bolt	.15
333	Bar Rest	.25
334	Lever Axle	.75
335	Lever Arm	.50
336	Foot Lever	.25
537A	Tilter Ratchet	$0 50
538A	Tilter Lever Handle	.75
739	Tilter Level Hand Trip	.15
748	Tilter Level Pawl	.15
540	Tilter Trip Rod	.10
541A	Tilter Hook Connection	.25
342	Axle Shaft	2 25
354	Drive Wheel	5.00
737	Oil Cups	.10
407A	Lifting Lever	.50
408A	Lifting Lever Trip Rod	.10
V3	Clamp Collar (2 pieces)	.30
A12	Spur Gear Stud	.50
F35	Axle Washer	.05
E24A	Crank Fender	1.00
350	Left Hand Driving Ratchet	.75
351	Right Hand Driving Ratchet	.75
DD3	Right Hand Pawl Spring	.40
EB3	Left Hand Pawl Spring	.40
353	Stub Socket	1 25
I5	Outside Shoe	1 75
V	Finger	.25
716	Scythe Head	.40
777	Scythe Button	.10
554	Chafe Plate, small	.15
554½	Chafe Plate, large	.15
358	Shoe Cap, front	.25
359	Shoe Cap, rear	.25
300	Pitman Rod Fender	.75
BH8½	Inside Shoe Runner	.50
CH10	Scythe Rod, Drilled, 4 ft.	1.25
CH14	Scythe Rod, Drilled, 3½ ft.	1.00
DH16	Finger Bar, Drilled, 4 ft.	$4 00
DH14	Finger Bar, Drilled, 3½ ft.	3.50
BH16	Scythe, No. 716 Head, 16 sections	2.25
BH14	Scythe, No. 716 Head, 14 sections	2.00
561	Crank Pin Bushing	.35
J	Track Clearer Iron	1 00
JJ	Track Clearer Slide	.25
	Track Clearer Bolt and Thimble	.15
770	Pitman Rod Wrench	.10
784	Lock Nut	.05
785	Pitman Rod Ratchet Nut	.05
714	Pitman Rod Clamp, crank end	.25
77	Pitman Rod Clamp, scythe end, spring side	.25
774	Pitman Rod Clamp, scythe end, stop side	.25
550	Tilter Pawl Spring	.05
A 5	Track Clearer Spring or Shipping Spring	.05
555	Ratchet Nut Spring	.05
	Thill, right hand	1 50
	Thill, left hand	1 50
	Cross Bar to Thills	1 25
	Stub to Thills	.75
	Whiffletree	.50
	Finger Bolts, steel	.05
	Bolts, common sizes	.08
	Section Rivets, per lb.	.20
	Scythe Head Rivets, per lb.	.20

The parts of One-Horse New Standard Gear Mower No. 3 not mentioned above are same price, and will interchange with parts of the New Standard Gear Two-Horse Mower.

Laib Co. 777 Louisville Ky

BUCKEYE HEATER.

FIG. 2117.

RIVET FORGE.

FIG. 2118.

Shrinkers, Braziers and Expanders.

Number	1	* 3 x	3
Price, to burn Gasoline ..... each	50.00	.....	.....
Price, to burn Kerosene ..... each	60.00	80.00	120.00

Buckeye, Klondike Heaters and Locomotive Fire Kindlers.

Price, Buckeye and Klondike Heaters ..... each	75.00
Price, Locomotive Fire Kindlers ..... each	100.00

Tire Expanders.

Number	7	† x	x x
Price	25.00	115 00	200.00

Rivet Forges.

Number	B	A
Price ..... each	95.00	105.00

* Number 3 x Shrinker is supplied with the same burner but fitted with No. 2 Buckeye Light Tank and fittings, see page 772.

Buckeye Heaters furnish a hot powerful flame which can be hung or adjusted to such requirements. Klondike Heaters are made for thawing frozen ground.

Locomotive Fire Kindlers are mounted on a two wheel truck, the flame is adjustable, either right angle or straight.

Tire Expanders are an economical and quick method of expanding tires and straightening bent frames and sides of steel cars, etc. The burner is made in segments to encircle the wheel.

† No. x Expander consists of BURNER ONLY which is adapted to No. 3 Buckeye Light Tank: Rivet Forges, will heat about 2000 rivets per day, size approximating ¾ inch diameter 3½ inches long.

Laib Co.
778
Louisville Ky

OIL CANS.

GALVANIZED.

WITH SPOUT.

FIG. 2119.

WITH FAUCET.

FIG. 2120.

WOOD JACKET.

FIG. 2121.

Capacity.....gallons	1	2	3	5	10
Price, Galvanized, with Spout.....per dozen	2.20	3.75	5.00	5.00	.....
Price, Galvanized, with Faucet.....per dozen	.....	.....	6.00	6.00	12.50
Price, Wood Jacket.....each	.40	.55	.70	.85	1.35

SEAMLESS STEEL.

FIG. 2122.

FUNNELS.

TIN.

FIG. 2123.

GALVANIZED.

FIG. 2124.

MEASURE.

FIG. 2125.

Seamless Steel Oil Cans.

Price, 2 Quart.....per dozen	7.50

Funnels, Tin and Galvanized.

Capacity.....quarts	1	2	4	8
Price, Tin.....per dozen	.44	.65	.85	.....
Price, Galvanized.....per dozen	.....	.95	2.25	3.75

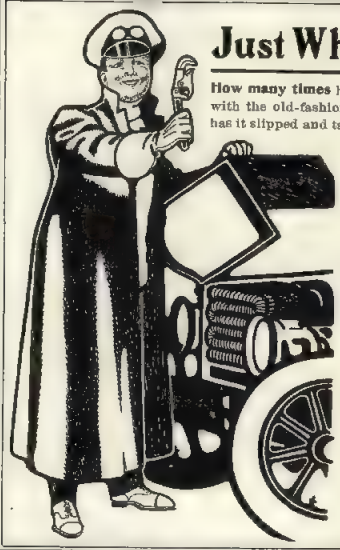
Measures.

Capacity	1 Pint	1 Quart	1 Gallon	5 Gallon
Price.....per dozen	.45	.65	2.10	18.00

Here it is!

BULLARD AUTOMATIC WRENCH

Specially adapted to Automobile use.



Just What You Want

How many times have you skinned your knuckles with the old-fashioned wrench? How many times has it slipped and taken the corners off a nut. How often has it gone cranky and refused to come off when you wanted it to? **No wonder you said things.** Wouldn't you like to have a wrench that won't slip and never balks? One that you can slip onto anything, anywhere, without adjusting it? **Buy a Bullard.** It's automatic, self adjusting. Works in a limited space, because there's no lost motion. Never cramps. Greatest power, longest wear. Made in 5 sizes, up to 3 inches capacity.

TO THE TRADE

We are in position to quote liberal discounts on your next year's requirements.

The Bullard Automatic Wrench Co.

PROVIDENCE Incorporated RHODE ISLAND

Automobile Ad Dept.

1906 "Spitfire" Spark Plug

The 1906 "Spitfire" Spark Plug, made by A. R. Mosler & Co., 1679 Broadway, New York, is made in a large number of styles for different cars, the line including plugs for Knox, Locomobile and other cars, standard pipe and metric threads. The various parts as shown herewith are assembled between the cap and the base of the plug.

The insulator is made of porcelain, of selected, most finely ground kaolin, all traces of metal having been removed by the use of very powerful electro magnets. A high temperature glaze is used, so that the porcelain will stand 2500 to 3000 degrees of heat without any material change. The porcelain is provided with an angular recess into which locks the hexagonal nut H. N. Between this nut and its seat in the porcelain is located a small piece of asbestos cord A. C., which produces an hermetically tight joint. The knurled nut K. N. is tightened against the porcelain which draws the hexagonal nut against the packing and locks it into position. The base is not filled by the recessed porcelain insulator.

1906 Mosler "Spitfire" Spark Plug disassembled. P, porcelain; R., rod with platinum seat; H. N., thumb nut K. N., knurled nut; H. N., hexagonal nut, A. C., asbestos cord A. C. W., asbestos copper washer, S., protector, K. N. S., protector knurled nut.

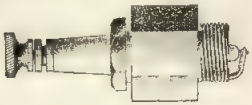
The chamber in the plug base and the space in the porcelain are filled with dead gases, preventing oil, soot or hydro-carbon mixture from reaching the insulator.

The construction of the plug does not require the bending of the wire. To adjust the length of the spark the centre rod can be screwed up or down.

Over the porcelain, between the cap and the nut, is sometimes secured a fibre protector, which renders the plug immune against the inclemencies of the weather and also protects the plug when accidentally struck by a tool when in the engine.

The "Mechanical" Spark Plug

The "Mechanical" Spark Plug consists of but four parts the shell, porcelain, gasket and the outer bushing which holds the porcelain in. It is easily assembled and taken apart. The shell is of a non-expansible iron, the bushing of brass, the gasket of copper and asbestos, the sparking points of non-oxidizing platinum, and the insulation of the best French porcelain. The electrodes are very large and of soft brass, to reduce resistance and enable the spark to easily jump the gap at highest compression. The points are not only of high fusibility but are non corroding. While the plug is not unduly heavy, due attention has been paid to have all parts sufficiently substantial for their purpose. A plug of substantial proportions has the advantage of heating up and cooling off slowly, and breakage of the porcelain is not



The "Mechanical" Spark Plug.

likely, therefore, to occur. The price of this plug is $1.50, and the manufacturers, Mechanical Plug Co., 3021 Olive St., St. Louis, Mo., guarantee each plug for 30 days against defects. They also offer to give a new plug for an old one and 75 cents, no matter how long the old one has been used. So that if a "Mechanical" plug is purchased the user can thereafter keep himself in new ones for 75 cents each. The terminal is provided with the regulation nut for fastening old style terminals, and also with the groove allowing the use of the new style clip terminal. The price of the plug includes a clip terminal. New porcelains are furnished at 50 cents each, brass bushings at 10 cents, and gaskets at 5 cents each.

"Herz" Steel Armored Cable

We herewith present an illustration of the new "Herz" steel armored ignition cable, which was described in our November number, page 168, but not illustrated. The cut

The "Herz" Steel Armored Cable

shows plainly the different layers of rubber, etc., and the woven steel armor which, while protecting the cable from injury, does not affect its flexibility. This cable is manufactured by Herz Co., 187 Elm St., New York.

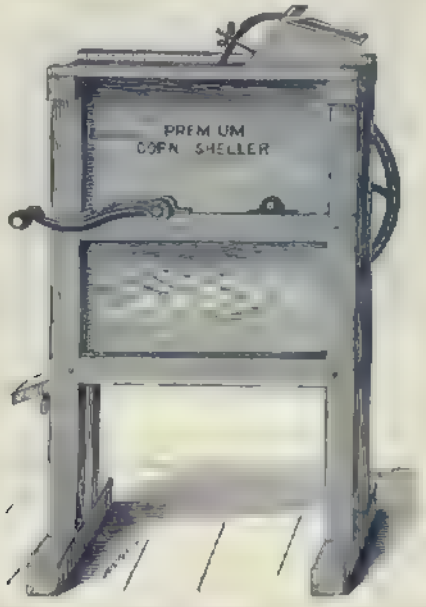
Boston Gear Works will remove from 152 Purchase St., Boston, Mass., to Norfolk Downs, Mass., where they will erect a 1-story modern factory of 20,000 sq. ft. floor space. Norfolk Downs is about 15 minutes' ride from Boston. The new factory will have a saw-tooth roof and will be arranged in departments to suit the nature of their work.

BURRALL'S IMPROVED CORN SHELLER.

The Burrall Corn Sheller is a model of compactness and simplicity. It has the merit of cheapness combined with durability, and is therefore within the reach of every farmer, and it is economy for even the smallest raiser of corn to use it. It will shell any sized corn by regulating the spring in the hopper. The Burrall has a capacity of about one hundred bushels of corn per day, and is one of the fastest and easiest running shellers made.

Burrall Sheller . . . . . Mfrs. price, each, $9.00 Our net price, each, $7.00

PREMIUM CORN SHELLER.



A well built, serviceable corn sheller at a very reasonable price, has separator and balance wheel, runs easily, and works well on all sizes and kinds of corn.

Premium Sheller, plain . . . . . Mfrs. price, each, $9.00 Our net price, each, $8 00
" " with separator . . . . . " " 11.00 " " 10.00

BANNER ROOT CUTTER.

The No. 16 Banner Root Cutter shown above is a large and powerful machine having a capacity of 50 to 100 bushels of roots per hour. This cutter can be used with a small gasoline engine or other light power and is suitable for large stock farms, etc. For price, see page 226.

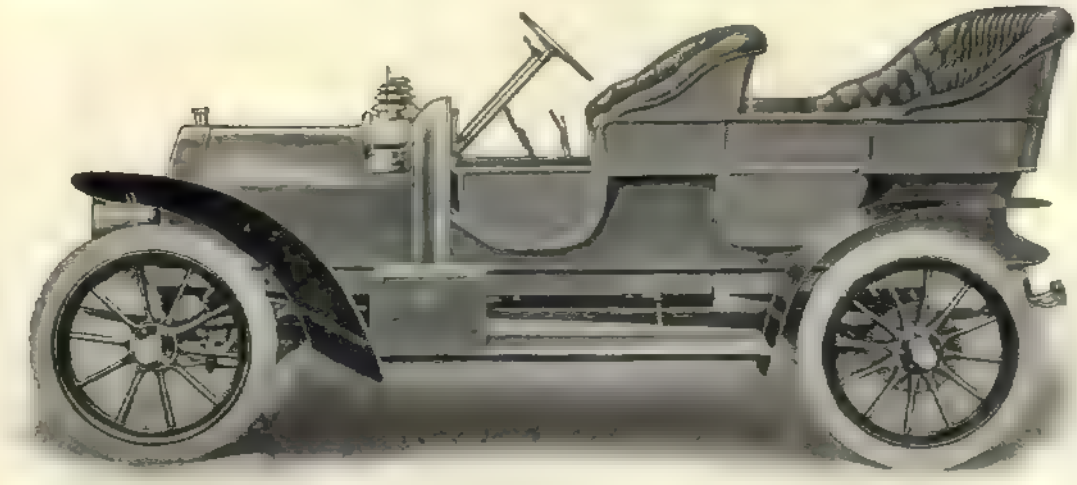
PURITAN ROOT CUTTER.

For a low priced machine the Champion is one of the better class. It is made of the best material and will prove very serviceable as well as durable. Has hook-shaped cutters, does the work rapidly and in a thorough manner.

The knives cut pieces of uniform size. The machine is furnished with a heavy balance-wheel to give a steady motion.

This is one of the best machines for cutting all kinds of roots for feeding stock. It cuts the roots into small, regular sized pieces, leaving no piece large enough to choke sheep. The knives can be adjusted to cut coarse or fine, as desired, and being made of the best material, in the strongest manner, will last 15 or 20 years. It will cut one bushel of roots per minute with ease, suitably fine for feeding. Occupies a space of 2½ by 4 feet on the floor.

Champion Root Cutter with Balance Wheel . . . . . Mfrs. price, each, $9.00 Our net price, each, $7.50



OLDSMOBILE
MODEL S

Following our general announcement of last month, we here set forth in detail the leading features of our Four-cylinder Touring Car.

In general appearance this car is strictly up-to-date. The front axle has been placed well forward under the radiator, giving a wheel base of 106 inches. The standard tread is 55 inches, but either 52-inch or 58-inch tread will be furnished to order. The general design of the car is such that the tendency to stir up dust when running is very small. Weight of car 2200 pounds.

PRICE, $2250

MOTOR: The car is equipped with a four-cylinder vertical water-cooled motor, developing 24 to 26 H. P. Cylinder, 4½ inch bore by 4¾ inch stroke. Pistons are carefully grounded, and "run in" with a belt to insure accurate fit. All the cylinders, pistons and rings are made from the best grade of cast iron from our own foundry. An exceptionally silent muffler is arranged longitudinally beneath the side of the car.

VALVES: The valves are mechanically operated and easily adjusted. The fly wheel is carefully marked, and an index is placed on the crank case so that the valves may be quickly and accurately timed. All bearings are of generous proportion, and quarter boxes are of babbitt-lined bronze. The cylinders are cooled by means of water circulated by a gear pump. The radiator used is one of our own design, with a flat tube construction. A fan placed just behind the radiator aids in cooling the motor when the machine is standing still.

CRANK CASE: The crank case is of aluminum. The lower half may be removed without disturbing the bearings, which are hung from the upper half of the case. The crank shaft, connecting rods and pistons can, therefore, be very easily examined or removed without disturbing the hanging of the motor.

OLDSMOBILE

FRAME: A pressed steel frame of channel section is used. In addition to the main frame, a sub-frame is provided which supports the motor and radiator. A portion of the dust pan which runs under the car is riveted between the outside and inside members, and gives a pronounced bracing effect. A portion of the dust pan is removable, so that the motor may be very easily examined, yet at the same time it is firmly fastened when in place and absolutely prevents the dust, mud and water from reaching the working parts of the mechanism. Both engine and transmission are [illegible] upon the sub-frame, and all working parts may be removed without disturbing the length of the crank, or transmission cases.

TRANSMISSION: The transmission is of the sliding gear type, having three speeds forward and one reverse. All the gears are made of special high carbon steel, tempered and hardened. **The control is of the selective type, all changes being made with one lever.** The clutch is of the "dish pan" cone type, and is provided with a simple spring device whereby the load may be thrown on the motor gradually, thus doing away with any jerking motion when starting. The clutch may be thrown out by foot lever and also by emergency brake lever.

CONTROL: Steering is accomplished through a worm and nut mechanism. The nut has a large wearing surface so babbitted that same may be easily replaced at any time. The spark and throttle levers are placed upon the steering post, and just beneath and at the right-hand side of a 16-inch oval-rim steering wheel. An accelerator pedal is also arranged in such a way that it may be used with ease when it is desired to instantly increase the speed for a short interval.

BRAKE: [illegible] are two [illegible] operated by a special control, both in the emergency brake lever, which "sets up" the emergency toggle joint brake upon the rear wheels. Application of this latter brake throws out clutch, disconnecting transmission from motor.

AXLES: The front axle is of our own special design, and is built of 2-inch tubing having a ¼-inch wall. The steering knuckles have special large bearings, all these bearings being equipped with self-handled grease cups, and protected by leather dust caps. The steering connections and gear links are adjustable so that the wheels may be easily lined up at any time. Axle is dropped in center to protect the fly wheel and other parts beneath the car. The rear axle is equipped with Timken roller bearings throughout.

DRIVE: Bevel gear drive is used, having a ratio of 3 to 1. Ratio of 3½ to 1 or 4 to 1 will be furnished on special order. We do not recommend any lower than 3½ to 1.

SPRINGS: Large, half-elliptical springs, made of the best stock obtainable are used, the front being 36 inches long, and rear 48 inches.

MISCELLANEOUS: The wheels have ten spokes in front, and 12 in the rear, and are equipped with 32-inch by 3½-inch tires. Four-inch tires for extraordinary service can be had on special order. Running board and mud guard irons, instead of being riveted on are drawn into taper sockets upon side members of frame and are easily removable. The lamp brackets are adjustable for different sizes of lamps; dash and tail light brackets are supplied. Luggage rack is equipped at rear on special order. A tubular horn, two acetylene head lights, generator and two oil lamps are furnished with each car. A box carried on running board contains storage and dry cells, tools and compartment for waste and small repairs.

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The SOULES DELIVERY WAGON

Price, $1500.00

Lots of power lots of strength simplicity of construction and durability. These, together with moderate price are what must be combined to make the ideal delivery car, which is to carry a load not in excess of 1500 pounds.

The Soules Delivery Wagon is equipped with a double opposed engine, with 4 x 5½ in. cylinders, located under the hood. Sliding Gear Transmission, two speeds forward and reverse. Practically all working parts of the machine are directly under the hood, or the floor boards under the operator's feet, which is the only form of construction suitable for delivery wagons, as it would not be practicable to remove the load in order to make repairs if necessary.

Dealers throughout the country thus far have failed to fully appreciate the desirability of building up the commercial end of the motor car business. The day is not far distant when it will be more satisfactory and profitable than the pleasure vehicle, and the agent who takes hold of this branch of the business early will get his experience in time to reap the reward of a big boom later, besides adding a fair amount to his profits at present. **THE SOULES DELIVERY WAGON** is the only car to day of a moderate price, which is built for the purpose for which it is intended. It is not a pleasure vehicle chassis with a delivery wagon body, but is built for one purpose—that of carrying a paying load of at least 1500 pounds.

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Fuel controlled entirely by equalizing automatic air valves.

Will increase POWER and CONTROL of any 1905 FORD or OLDS car, or money back.

Positively will not accumulate fuel in, or CLOG LONG INLET PIPES.

Perfectly adapted to gasolene cars, boats, airships and motors for any kind of service.

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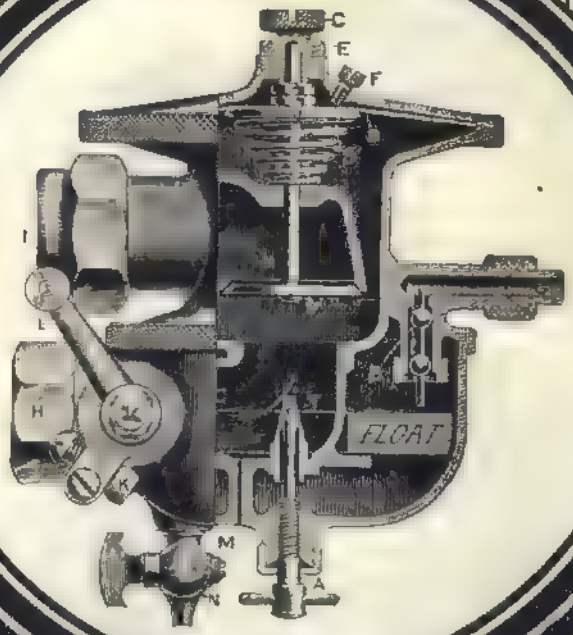
KINGSTON MUFFLER

IMPROVED FOR 1906

BYRNE, KINGSTON & CO.,

KOKOMO, IND., U. S. A.



KINGSTON AUTOMATIC CARBURETOR

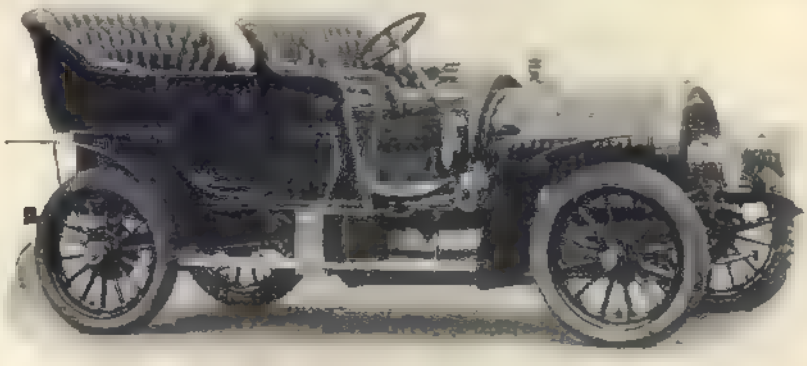
PRICE $50.

Above is illustrated the latest creation of Byrne, Kingston & Co.—the most successful carburetor in the world. It offers a combination of features and advantages never heretofore introduced. Our faith in this carburetor is indicated by our guarantee. If it does not suit you, return it within thirty days and we will refund you your money, and ask you your troubles afterward.

BYRNE, KINGSTON & CO., Kokomo, Ind., U.S.A.

The 1906 Royal Tourist

The 1906 Royal Tourist, made by Royal Motor Car Co., Cleveland, Ohio, is a side entrance car, the body being built on the "King of the Belgians" style. It is luxuriously upholstered and every feature necessary for comfortable touring is provided.

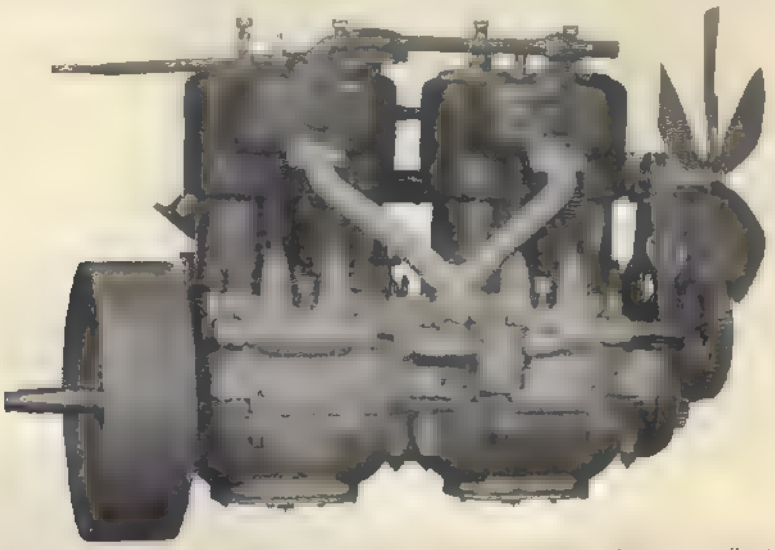


The 1906 Royal Tourist

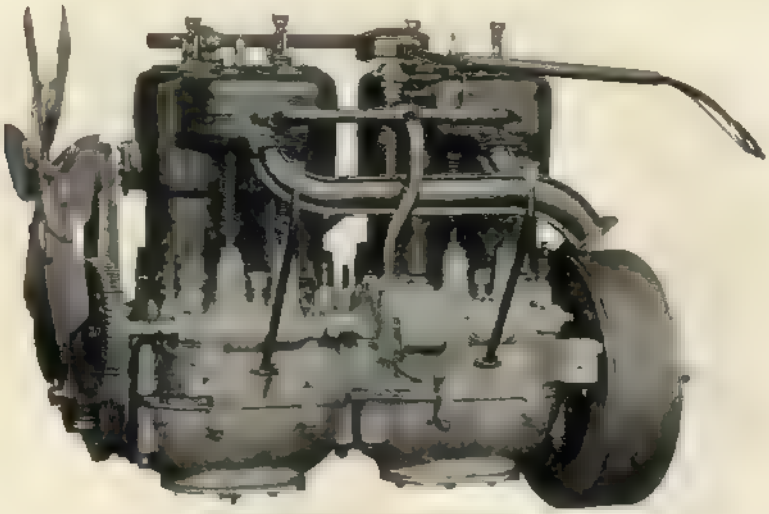
Ample provision is made for carrying tools and luggage. The 22 gallons of fuel carried is sufficient for 250 miles' running. The fuel tank is under the gas tank

THE MOTOR.

The motor has four cylinders, each 5 ins bore by 5½ ins. stroke. Valves are mechanically operated, the exhausts on one side, the inlets on the opposite side. Valves are interchangeable, spark plugs are located over the inlet, and as they are swept by fresh gases, never get dirty. The cylinders are cast in pairs. Bronze bearings are used throughout in the engine, with the exception of the wrist-pin bearings in the connecting rods, which are of hardened steel. All bearings have ample surface and will not need replacing in less than a year's time. The flywheel is of large diameter, and is bolted to a flange, which is integral with the crank shaft. Fibre gears are used on the cam shaft, making the gears absolutely noiseless. All wearing parts on the cam mechanism are carbonized and hardened. The wrist-pins are hardened and ground. The crank shaft is a solid drop forging and is ground to size. The commutator is situated on top of the cylinders of the engine, and is easy of access. A gear driven centrifugal pump, with a hardened and ground gear and shaft, takes care of the water circulation, the gear and shaft being practically indestructible. Provision is made for examining the connecting rod bearings, and, if necessary, removing the same without dismantling the entire engine. This is done by removing the large hand hole plate under the lower half of the engine.



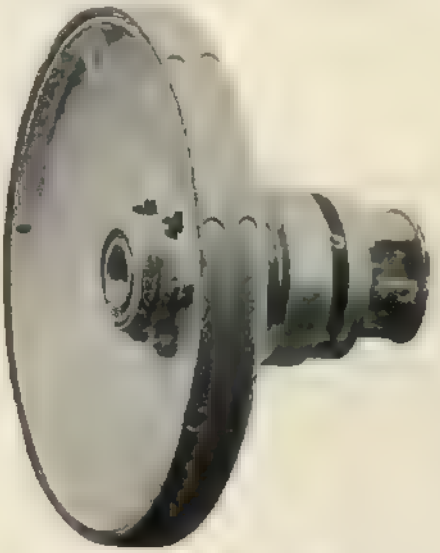
Inlet side of engine, 1906 Royal Tourist 5-in. bore 5½-in. stroke exhaust valves on opposite side, valves all interchangeable, spark plugs over inlet; cylinders cast in pairs; commutator on top, easy of access, connecting rod bearings, etc. accessible through hand hole on under side



Exhaust Side 1906 Royal Tourist Motor

CLUTCH

A conical leather faced clutch, of large diameter, is used, having flat springs placed under the leather, so that the starting of a car is progressive, owing to the clutch taking hold easily and gradually. No adjustment is ever necessary on this clutch. A full universal joint is used between the clutch and the transmission case, thus making it unnecessary to have the engine absolutely in line with the transmission.



Clutch of the 1906 Royal Tourist

TRANSMISSION

The transmission is of the sliding gear type, having three speeds forward and one reverse, with direct drive on high gear. Hess-Bright ball bearings are used in the transmission. All gears are of exceptionally wide face, and are carbonized and hardened. Special grades of steel are used throughout in the construction of this transmission. All gears are bolted to flanges, so that no dependence is placed on keys or set screws to hold the gears in place. The flanges to which these gears are bolted are integral with the shaft.

The universal joints and the propeller shaft on this machine are exceptionally strong, and all wearing parts are hardened.

STEERING GEAR.

The steering gear is of the worm and segment type, and is exceptionally easy in its action. The steering of the car can be done readily by a lady, or even a child. All parts of the steering gear which are subject to wear are hardened. All parts are bolted in place, and all levers are either bolted or fastened by means of squared ends, so that there are no keys to wear loose.

FRAME.

The frame is made of pressed steel, and of sufficient strength so that it will not sag or become distorted from the hardest possible use to which the car may be put. The spring hangers are made of drop forgings. No vital part of the frame or fasteners are made of anything but the best steel forgings. The dash is an aluminum casting, with all the necessary parts cast on it. The oiler is a positive feed device, and the entire oiling

Drop Forged Crank Shaft of the 1906 Royal Tourist.

system is in plain sight. The induction, which is of quadruple type coil, is mounted on the dash. The radiator is of the cellular type, amply large enough to take care of the cooling under the most adverse circumstances.

The weight of the car is taken on the tubing, which surrounds the driving member of the axle, and not directly on the rotary or drive member. The entire rear axle is equipped with roller bearings.

Shaft Drive and Rear Axle of the 1906 Royal Tourist

The fan is of large diameter, securely fastened to the engine, and it is driven by a large V shaped belt. This fan draws air through the entire radiating surface.

AXLES

The rear axle is gear driven, with bevel gear differential and clutch driven wheels.

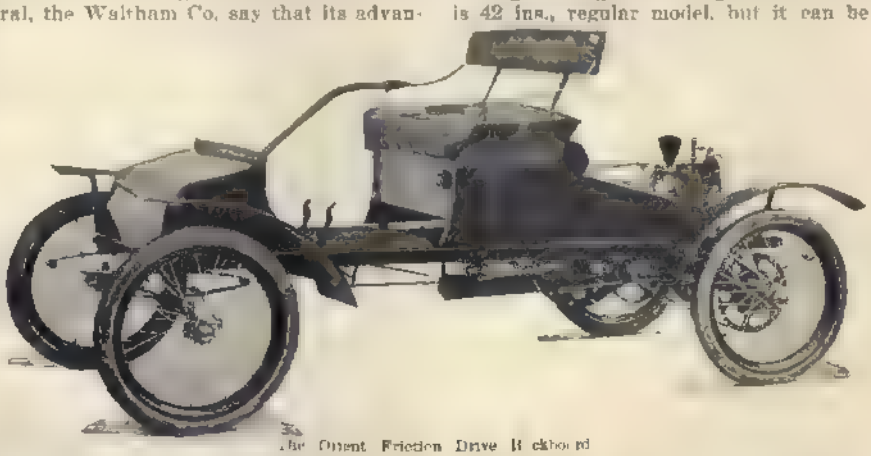
The front axle is of the tubular type, heavy enough to prevent springing unless an accident is met with. The front wheels run on roller bearings, similar to those used in the rear axle. All of the vital parts of the front axle are made of drop forgings.

Price of the 1906 Royal is $3500.

The Orient Friction Drive Buckboard

Several important changes have been made in the Orient Buckboard for 1906, among them the employment of friction drive. The 1906 machine is known as Model BB, and the manufacturers, Waltham Mfg. Co., Waltham, Mass., state that it is quieter, easier running, freer from vibration and easier to operate than last year's Model A. Regardless of the conflicting opinions on the advantages and disadvantages of friction drive in general, the Waltham Co. say that its advantage on this type and weight of car are undeniable. The side lever moves the friction wheel across the face of the disk for speed variation, passing the centre for reverse motion. The 1905 Buckboard was fitted with gear drive and was not provided with reversing mechanism. Drive is now by double chains. A benefit claimed for the present friction transmission is the fact that speed can be varied to as low a point as is required to meet road conditions

Model BB has a gracefully designed body which is carried on four full elliptic springs which, in conjunction with the long wheel base, make riding very comfortable. The new body is mounted on the usual buckboard platform, and besides providing comfortable seats also gives plenty of storage space. The road clearance is increased to 10 ins., being formerly 6 ins. Powerful band brakes are fitted to the rear wheels. Another new feature is a light fibre fan employed to assist in cooling the engine. The gauge of Model BB is 42 ins., regular model, but it can be furnished with a 56-in. gauge if desired. All vital parts are protected from dust, but in the illustration the covers have been removed. Oiling is controlled from the seat. The capacity of the fuel tank is 3½ gallons.



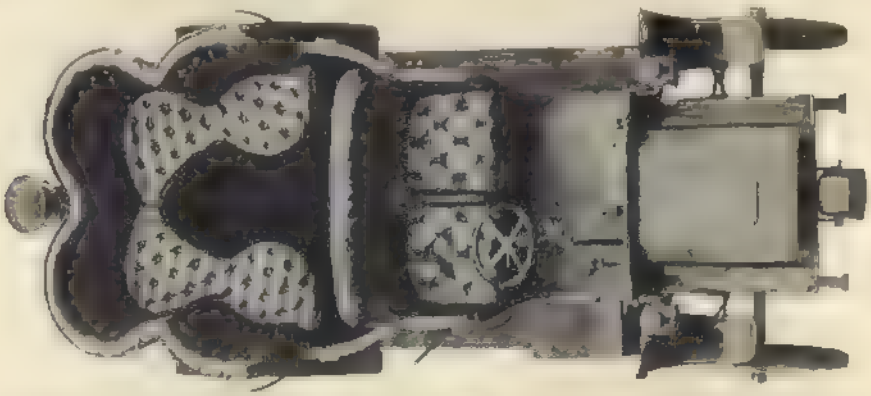
The Orient Friction Drive Buckboard

In a recent endurance test this car made 121 miles in 6¾ hours on four gallons of gasoline and 1 1-3 pints of oil. The following day, in the same test, it made 98 miles in 5⅓ hours on three gallons of gasoline and one pint of oil. Immediately following this test the car ascended the famous landmark known as "Old Boston Rock," an elevation of 562 ft.

The Columbus Buggy Company Six-Passenger Tonneau Body

HUGH DOLNAR

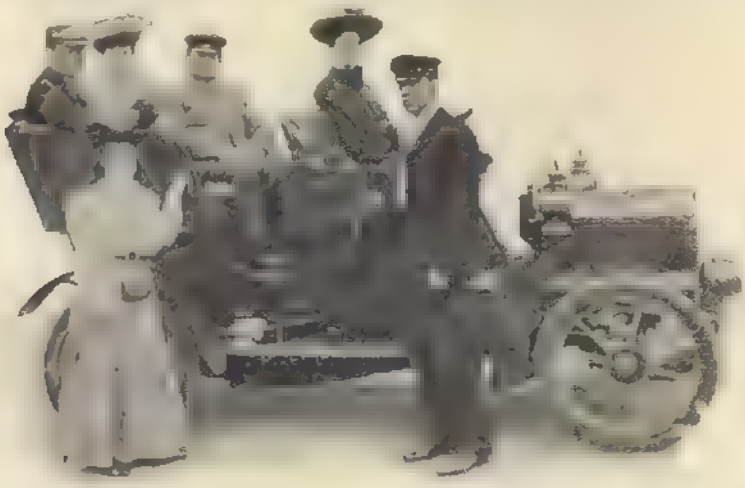
It would seem an easy matter to design a good car with a satisfactory body to carry six passengers if the designer were supplied with a thoroughly good chassis to and a good looking and convenient car body to seat five passengers. Those, however, who have tried their hands at chassis design, are well aware that the good motor does not make an altogether acceptable running gear the easiest thing in the world to produce, and that a car body to seat five passengers, two in front and three in the wide tonneau seat, does not point the way at all clearly to the comfortable carrying of six passengers in one car body of elegant appearance. In point of fact, hard as it is to design a really good motor-car running-gear, it is an even more difficult matter to provide wholly satisfactory seats for six passengers in one car body.



Plan of Columbus Buggy Company's 6 individual seat tonneau body, as applied to a small car clearly showing the marked features of the "4-leaved clover" tonneau body design

The 5-seated tonneau is not altogether satisfactory; the "individual" front seats do very well as the passengers face to front and have individual territory which they may occupy at pleasure without encroachment upon the rights, privileges and easements of another, but the wide tonneau seat does not carry three passengers in any degree of comfort and personal liberty; the middle one of the trio serves as a buffer for the outside ones on rough roads and has no defined territory and holding for occupancy, so that the middle tonneau seat of even a very large car is something no one is eager to take

When it comes to adding a fourth passenger to the tonneau, already over populated with three individuals, there is trouble indeed. All the passengers must face to the front; all must have individual territory, each



Columbus Buggy Co.'s 6-passenger tonneau body, door swinging to front, showing ample ingress and commodious entrance door opened by the driver for passenger to go in. The front swinging of the tonneau door is most suitable.

seat of defined limits the undisputed property of its occupant, all located so as to permit the forward view, and at the same time so as to enable all four passengers to see and converse with each other without twisting their necks uncomfortably. Two cross seats in the tonneau are not to be thought of, and the rear entrance tonneau, with seats for two passengers on each side, has been fully tried and found very inconvenient and unpleasant to all four of its occupants

Yet Mr. C. D. Firestone, president of the Columbus Buggy Co., Columbus, Ohio, U. S. A., has unriddled this vexing problem in the simplest manner possible, and made seats for four passengers in a side entrance

[illegible] this Buggy Company's 6-seat tonneau body, front and ¾ front views, showing the easy seating and full view of all six passengers, every one in an individual seat. This is a body built by the Columbus Company from original design, copyrighted and patent applied for, which gives 6 passengers individual seats so located as to give each the forward and side outlook to each passenger sitting at ease, without in any way interfering with [illegible] This latest scheme was devised by Mr. C. D. Firestone, President of the Columbus Buggy Company, very well known [illegible] as a builder of fine pleasure carriages, and Mr Firestone's idea was worked out by the [illegible] of careful study on the part of Mr. Charles F. Harndt, chief designer for this Company. Some [illegible] of these bodies applied to horse-drawn carriages have been sold and at the St. Louis Fair [illegible] exhibit was awarded a gold medal, and Mr Harndt received a bronze medal for [illegible] carriage [illegible] These illustrations are from [illegible] the first [illegible] only one so far, of [illegible] applied to an automobile.

Rear right view of Columbus Buggy Co.'s 6-seated tonneau body, showing the seat back corners. This body does not overhang the wheel plan at any point, and yet gives six individual seats, so disposed as to give each passenger a holding a territory of his own in which position may be freely changed without contact with another passenger

and side ranges of vision, all can see and converse with each other, and each has an individual holding and tenure which is quite sufficiently separated from that of the others.

Mr. Firestone took the lucky four-leaf shamrock for his body plan, and this fortunate thought was all that was needed to accomplish the impossible, and make a comfortable and elegant side-entrance vehicle body to carry four tonneau passengers without the possibility of crowding or discomfort, and at the same time in such agreeable propinquity as to promote sociable intercourse

Figure 1, shows a small side entrance tonneau body, doors swinging to front, which Mr. Firestone has placed on a light running gear, thus producing a small car which can yet carry 6 passengers in comfort and elegance, a result never before obtained.

This Firestone body is not only a beautiful and thoroughly convenient affair, but it is also very strong and very good to build, and its contours lend themselves readily to a composite structure of pressed steel for the deeply indented seat backs, to be superimposed on a wooden underbody, so that from all points of view, appearance, construction and convenience fully considered, this Firestone "Shamrock" tonneau sociable car body seems absolutely faultless, beautiful to the eye, strong and easy to construct of either all wood, all metal, or of metal and wood combined, and carrying its four tonneau passengers either entirely separated or associated in any agreeable intimacy of position and intercourse. In fact, this elegant structure makes a party of four in the tonneau a really delightful number, no one in the way of any one else, all in the full enjoyment of the view and of all possible social advantages, from conversation to card playing.

The Columbus Buggy Co. has copyrighted the design of this 4-leaf clover tonneau, and has made application for a mechanical patent to protect this invention, and is prepared to supply these bodies to the trade in any numbers, and in any materials and style of finish. This company has ten acres of factory floor, equipped with very latest improved machinery and is one of the oldest and largest makers of fine pleasure vehicles in the world, and as Mr. Firestone has certainly offered a perfectly satisfactory solution of the 6-passenger tonneau puzzle, it seems a logical prediction to say that this "Lucky Shamrock" Tonneau, six passengers sociable, will very soon become one of the most popular forms of car bodies.

Mechanical Toy Motor Cars

Several months ago we illustrated some ingenious toy mechanical motor cars which had been imported by Charles E. Miller, 97 Reade St., New York City. Since this publication the inquiries for these mechanical toy automobiles has been so great that Mr. Miller has ordered very large shipments of them, a number of which have arrived, and others are on the way, and he is now taking orders for these cars for delivery in October and November. There is quite a large variety of patterns of these mechanical motor cars, including runabouts, touring cars with side and rear entrance, fire engines, delivery trucks, etc. They are propelled by very ingenious and substantial mechanism, actuated by fine clock springs. There is a nice profit in these goods for the trade, and many dealers are taking them up.

New England Tourists' Guide

A tourists' guide book and register of automobile owners has recently come off the press of F. S. Blanchard & Co., 6 Walnut Street, Worcester, Mass., and is the most thorough, complete and practical New England guide book for automobilists yet issued. It is called the "New England Automobile Register and Tourists' Guide" and is accompanied by a large map of New England (32x36 in.), folded up into the same size as the book (5x9½ ins).

The book contains over 400 pages, but because of the fine light stock used, it is less than ¾-inch thick, and therefore slips easily into the pocket. It contains the official registries of owners in the New England States; gazeteer of cities, towns and villages; touring routes; state laws; local ordinances; stations; hotels, selling agents and a directory of manufacturers in the automobile industry classified under headings corresponding with their lines of products. Besides the large map accompanying the book, there are numerous maps of route centres throughout the book itself. Price of the book and map is $3 00, and it seems well worth it.

French For Tourists

A book compiled by C. Helene Barker and published by W. F. Brainard, 19 E. 17th St., will be found of great use to American tourists in France and French speaking countries and especially so to automobilists, as it is written with this object in view. It contains the English and equivalent of all elements of usual conversation arranged under subjects and accompanied by explanatory notes. Grammatical rules are not given, but the French language is taught by comparison with the English. The book is intended for those who, having studied the French language, desire to brush up in it for a trip abroad or for those who, having never studied French, desire to quickly obtain a practical knowledge of the same for conversation and correspondence while abroad

The Republic Rubber Co., of Youngstown, Ohio, have purchased the rights to the patent wheel rim of O. L. Pickard, and Mr. Pickard has associated himself with the company.

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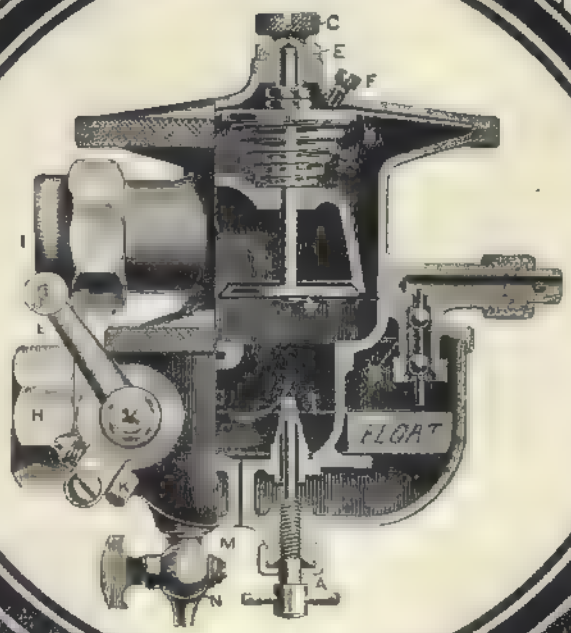

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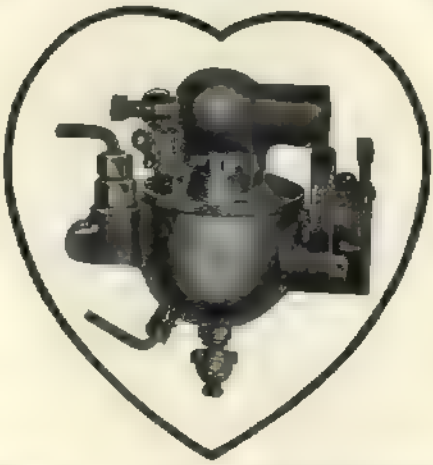
BYRNE, KINGSTON & CO., Kokomo, Ind., U.S.A.

The HEART



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WILSON & COMPANY, Ottawa, Ontario, Can.

Reo Wagonette Carries Passengers 700 Miles at Less than ¼ Railroad Fare

The Economy Test conducted by New York Motor Club, Oct. 30-Nov. 4, brought out the fact that an automobile can carry passengers cheaper than railroads. The winner of the contest, a 10-passenger Reo Wagonette, went through the 6-days' test, covering about 700 miles in all, at a total operating cost of $29.30. The operating charges included all cost of keeping the car running, and a schedule of prices was adopted agreeing with the New York Automobile Trade Association schedule: Gasoline, 25 cents per gallon; machine oil, 40 cents per gallon; cylinder oil, 80 cents per gallon; time of engine or general repairs, 75 cents per hour; new parts, catalogue price; chain repairs, 50 cents per hour and catalogue price of new links; all moneys paid for any purpose, such as legal fines, bridge tolls, ferry charges, and necessary fees of all descriptions; time charges were made for no smaller fractions of an hour than fifteen minutes; time of tire repairs, 50 cents per hour, charges to be assessed in respect to any occupant of the car who assists or any repairman en route; punctures of inner tubes, 75 cents each; punctures of shoes, no charge; blowouts of inner tubes, 75 cents each; blowouts of shoes, no charge; time to inflate inner tubes or replace same, 50 cents per hour.

There were 9 starters and 7 finished, a Frayer-Miller having stripped a gear on the third day and a Compound car having suffered from a deranged transmission gear and a broken axle. The Reo Wagonette's record is remarkable, as it includes $2.25 charged because the passengers walked up a hill where the clutch slipped on account of the sandy condition of the road. The railway fare for carrying a passenger over the routes covered by the automobile would be $14.58, which is over four times what it cost to carry the Reo's passengers.

The second best record was made by a Reo runabout of 8 H. P., which carried four passengers. Its expenses per passenger were $3.38½. This car used $7.80½ worth of gasoline and 25½ cents worth of lubricating oil. The third car in the list, a 15 H. P. Compound, carried five passengers, at an average cost of $3.42½. Gasoline cost $10.87½ and oil $2.12. A Wayne 20 H. P. car was fourth with expenses averaging $3.96 3-10 per passenger. Gasoline cost $12.40¾ and oil $2.10. The fifth car was an 8 H. P. Oldsmobile, which used $10.35¾ worth of gasoline and 42 cents worth of lubricating oil. The average expense was $3.61½, only a trifle higher than the Wayne. Another Compound car was sixth, and its expenses were $10.34¼ for gasoline, $2.13 for oil, the average being $4.29 3-5 per passenger. The highest average expense among the finishers was that of a Marmon 20 H. P. air cooled car, which used $14.82½ worth of fuel and $1.40 worth of oil, but its average per passenger,

Reo Passenger Wagonette which proved most economical in the New York Motor Club's economy test, Oct. 30-Nov. 4. The cost of operation averaged $2.93 per passenger, less than one-quarter the railway fare for the same trips. The 6 days' trips totaled 695 miles. The operating charges against this car included $2.25 charged because the passengers walked up one hill where the road was sandy and the clutch slipped.

$4 58 3-10, was about $10 less than the railway fare for the trip covered.

Although the official report has not yet been completed, the figures will not vary greatly,

The Wayne car driven by A. L. Kull combined speed with economy of operation, and proved itself in the first class of moderate priced machines

Reo Runabout with folding rear seat which [illegible] best record in the Economy Test. Carried four passengers; average cost [illegible] per day. A Reo Wagonette was first

if not all from those given herein, as the latter have been compiled from the observers' reports filed each day. It will be seen that

The Wayne car made the entire trip in the best average time, carrying five passengers. The car used was a 1905 model C, the car of

Many [illegible] best records in the Economy test. A. L. Kull's Commercial Car. Average cost, $3.7[illegible] for each [illegible] passengers. A car of the same make was [illegible] 1905 model. Average cost $4.29. [illegible] car of this make started but was disqualified [illegible] average [illegible] transmission. After making it recognized that it was not fair to [illegible] and not [illegible] out of the run.

the Reo 'Bus had the lowest average expense and the lowest total expense was that of the Reo Runabout, bringing the runabout second in average list.

the 1906 pattern not being ready. It was charged equally with possible time, owing to the fact that it carried a mechanic who primed the carburetor once, and was charged

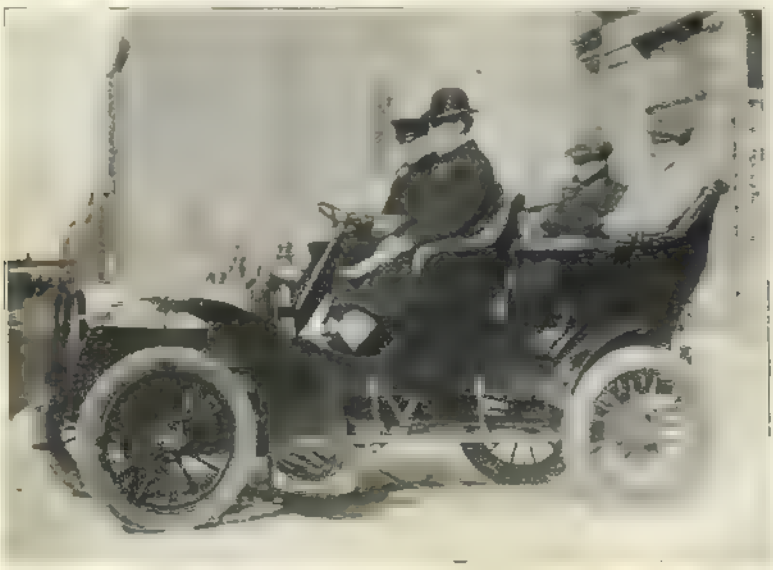
37½ cents for that. There were other charges of a like nature, and as these were doubled it brought the Wayne car's average up. The driver states that he had no adjustment or repairs to make on the trip carrying four passengers, with Freeman Munroe as the driver, rendered a good account of itself, covering the long distance each day at phenomenal speed, and with no repairs or adjustments of any account

Wayne 20 H. P. 5-passenger car. Fourth place. Average cost per passenger, $3.96 3-10. New York Motor Club's Economy test.

Both the Compound and the Marmon performed well, the former showing a great economy in fuel consumption, as might be expected with its compound gasoline engine, while the Marmon car traveled very fast at all times, although its gasoline consumption was a little more than the others.

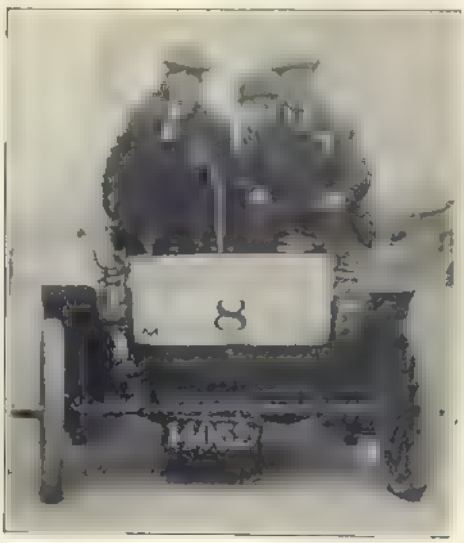
As was expected, the Oldsmobile runabout, carrying four passengers, with Freeman Munroe as the driver, rendered a good account of itself, covering the long distance each day at phenomenal speed, and with no repairs or adjustments of any account

The unfortunate stripping of a gear put the Frayer-Miller out of the run officially. It made the round trip to Philadelphia, and upon starting to Albany stripped a gear. No gear being at hand, a telephone message was sent to Columbus and the gear was started. The express car developed a hot box at Philadelphia, and the gear reached New York too late



Marmon 20 H. P. car. Won 7th place. New York Motor Club's Economy test. Carried 5 passengers. Had average cost of $4.58 3-10

to make a night and day round trip to Albany to join the party. The Frayer-Miller did, however, make the round trip to Southampton, and the official figures for the first two and the last two days show the Frayer-Miller in a favorable light, the average per passenger being $2.10 2-5. On the Philadelphia and return trip the Frayer-Miller car used



Eight H. P. Oldsmobile runabout fitted with rear seat and carrying 4 passengers. Won 5th place in the Economy test. Average cost per passenger, $3.96¼

but one pint of oil, and was 32 miles out of the course. It made the round trip to Southampton in 8.49, from which time one and one-quarter hours were deducted for stops and meals. On the trip to Philadelphia the car had the least running time, in spite of being off the course. The records of this air cooled car, therefore, give the manufacturers, Oscar Lear Automobile Company, much satisfaction.

In comparing the expenses of transporting passengers by railway and by motor car it must be remembered that only the actual cost of the trip has been counted in the cases under consideration, and that the railway fare includes interest charges on equipment such as tracks, stations, dividends on stock and a number of charges which must be averaged among the passengers carried, while none of these are considered in the expenses charged against the automobile. However, taking all of these into consideration, there is a wide margin, apparently, in favor of the automobile. In the first place, it does not need rails or stations, but under these conditions it could not compete with the railroad in speed. An important feature of the economy test results is the fact that a commercial car, a 10-passenger vehicle, made the best showing. The style of automobile designed more particularly to compete with the public conveyances did the best work in actual competition, and regardless of how the motor car will ultimately compete with the railway train—whether on tracks in singles or in trains, or on specially built roadbeds—the fact has been proved conclusively that the automobile can carry passengers more cheaply. It has also been proved that automobiles can under certain conditions, go more quickly than railway trains, and it now remains for transportation experts to so combine conditions that the automobile may carry passengers in public service both more quickly and more economically at one and the same time.

The results of the tests are summarized in the table herewith, in which the cars are named in the order of their average expenses:

The official announcement of awards show that Reo Cars came in for three other trophies in addition to the two won for greatest economy, the awards being as follows

The National Trophy, for the most economical showing per passenger, won by the 10-passenger Reo Bus.

The W. J. P. Moore Trophy, for the best economy record with tire charges included, went to the same vehicle.

The Morgan Trophy, for the least gasoline consumed per passenger, was also won by the Reo Bus.

The McMurtry Medal, for least ignition trouble, was awarded to the 4-passenger Reo Runabout, with no trouble from this source at all

The Gold Medal for cars up to $1500 was also won by the $675 Reo Runabout for the best showing made in this class. The silver medal in this class went to the Marmon car.

In classes C and D, for cars selling for $1,500 to $3,500, the best showing was by the Reo Bus, but the conditions prevented its receipt of a first class prize as well as the national trophy. The silver medal goes to the Marmon. Besides the vehicles named certificates were awarded a second Compound car and Oldsmobile and Wayne cars for meritorious performances.

H. P. and Car.	Maker.	Driver.	No. of Passengers.	Weight of Passengers	Fuel Expense	Repair Expense	Tire Expense	Total Expense	Average expense per passenger
6 H P Reo Bus	Reo Motor Car Co.	R. L. Lockwood	10	892	$16.00		$3.38 3-4	$2.9 1-4	$29.35	$2.93
8 H P Reo	Reo Motor Car Co	O. C. Singer	4	720	7.99 1-2	.85 1-2	5.39	13.54	3.385
15 H P Compound	E. H. V. Co	F. C. Carter	5	750	10.87 1-2	2.12	5.632	18.627	3.725
20 H P Wayne	Wayne Auto. Co	C. L. Knill	5	805 1-2	12.40 3-4	2.10	5 X.	19.817	3.963
8 H P Oldsmobile	Olds Motor Wks	F. L. Troe	4	608	10.36 3-4	.42	5.38 1-4	15.86	3.965
15 H P Compound	E. H. V. Co	C. J. Hatch	4	608 1-2	10.34 1-4	2.13	4.[illegible]5	16.[illegible]3	4.296
20 H P Marmon	Nordyke & Marmon	C. Langensen	6	6 30 1-2	14.92 1-2	1.40	6.00	22.915	4.583
Average for all cars.			5 2-7	815 5-7	$11.82 6-7	$1.68 5-7	$4.09	$18.[illegible] 4-7	$3.83 3-7

Maxwell

OUR
Achievements of 1905
ARE TO BE
Duplicated in 1906

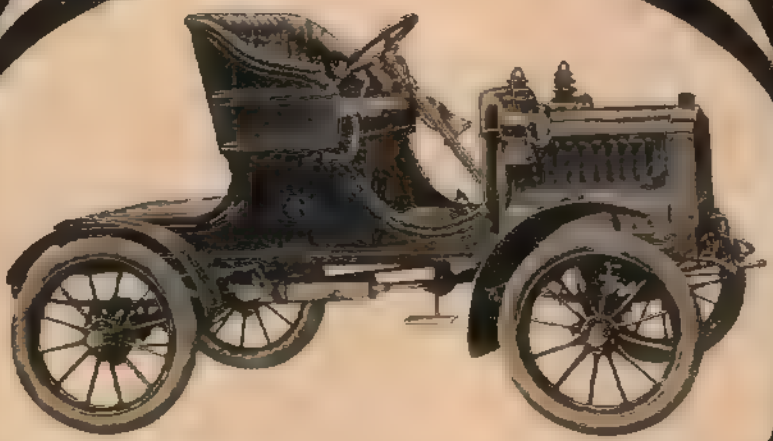
Last year, in all parts of the country experienced automobilists and well informed agents put their faith and money in **Maxwell** cars. This season it is the same story and the same people for the same reason. It will pay you to learn the reason, because we have made arrangements to more than double our output, and there will be cars enough for other wise buyers if they act quickly. Do you know the reason for **Maxwell** popularity? Ask any **Maxwell** dealer or owner.

Member American Motor Car Manufacturers' Association

Foreign Representatives (except Canada and Mexico)
RICHARD IRVIN & CO. 25 Broad Street New York City

MAXWELL-BRISCOE MOTOR CO.
TARRYTOWN N.Y.

Maxwell



The Tourabout. Price, $780.00

This is a wonderful little runabout. It was a great success from the day it was first marketed, and its growing popularity is universally recognized as being one of the sensations of the automobile business. We have arranged to manufacture 2500 of these cars for 1906. Isn't that sufficient proof that they represent an excellent value to the buying public? Did you hear about the performance of this car in a race with much higher-priced touring cars? If not, write for particulars.

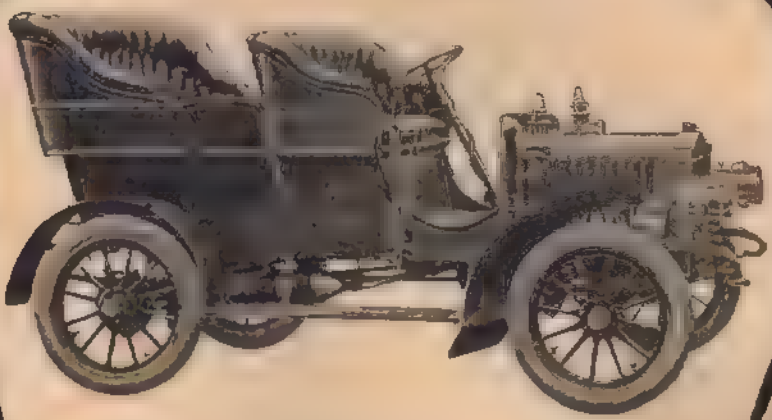
Member American Motor Car Manufacturers' Association

MAXWELL-BRISCOE MOTOR CO.
TARRYTOWN N.Y.

Maxwell

Model H, Touring Car

PRICE, $1450.00



This is the car that set the pace for a moderate-priced, practical touring car, with the engine under the hood. Copyists are always a year behind the times. We are originators. The moral is obvious.

The **Maxwell** will run the most miles, for the smallest cost of any touring car made. Ask us the reason. The answer will be convincing as it will be based on facts, and facts are stubborn things to argue against.

Member American Motor Car Manufacturers' Association.

MAXWELL-BRISCOE MOTOR Co.

TARRYTOWN, N. Y.

Maxwell

—This— Information is for the Benefit of the Prospective Automobile Buyer

BEFORE writing this announcement we have endeavored to place ourselves in your position. That is, we have tried to see ourselves as a possible purchaser of an automobile (an exacting one, too), so that we could estimate the wants of the average buyer, and ascertain in what respect the **MAXWELL** car would "fill the bill." We have concluded that the first question is that of price, as it is the basis of all trading. We therefore have compared the **MAXWELL TOURABOUT** at $780.00 and the **MAXWELL TOURING CAR** at $1450.00, with other automobiles supposed to be of the same type. We are satisfied without investigation and earnestly recommend you to make a similar comparison.

The next point to be considered is design. Again we are satisfied as a result of making comparisons. We ask you to look first at the general lines of **MAXWELL** cars, and after you have made a surface inspection, to dive deep into the construction. In the placing of all parts in their design, measurements, material and finish, and the way in which they are assembled, you will readily see the advantage of **MAXWELL** originality and workmanship. The final essential to be considered, is the past, present and future. Gauged by the opinion of others who have bought, (ask us to send you a book of testimonials), and the fact that last year's customers are inducing their friends to buy **MAXWELL** cars this season, we would say that the recommendation of the past and present is a safe basis upon which to be assured of satisfaction in the future. We can now only advise you to adopt the motto seen everywhere along the railroad "Look and Listen," for by inspection and inquiry you will be convinced that what we have told you is so, and incidentally you will become a satisfied owner of a **MAXWELL**—the simply perfect and perfectly simple automobile.

Member American Motor Car Manufacturers' Association

MAXWELL-BRISCOE MOTOR Co.
TARRYTOWN N.Y.

"The Maxwell"

Automobile Dealers

The question "Which cars shall I handle next year" is of the utmost importance to you, as upon your selection depends success or failure, during the 1906 season. A great many manufacturers make extravagant claims for their cars, which sound all right, but do not work well in practice. You want cars that will do all that is claimed for them. The MAXWELL is sure to "make good."

Its most recent achievement was the winning of the "Climb to the Clouds" up Mt. Washington. It was a regular, standard Model H Touring Car—just such a car as we are shipping every day—without special axle or gearing, that accomplished this feat in the shortest time of any car in its class. Isn't this conclusive proof of the MAXWELL'S reliability and stability? A car that can make an 8-mile climb up a steep, rough mountain road in one hour and twenty-seven seconds, is surely the car that can be depended upon for satisfactory service everywhere.

We are placing a few more agencies now, and it will be well for you to get in line as early as possible for next year. There will be no question about your being able to obtain cars promptly, for notwithstanding the marvelous sales record of the MAXWELL for 1905, we are preparing to make 3500 cars for 1906.

Don't Delay!

Maxwell-Briscoe Motor Company

TARRYTOWN, N. Y.

Members American Motor Car Manufacturers' Association

"The Maxwell"

A WORD

to the Prospective Motor Car Buyer

¶ On the principle that "nothing succeeds like success," is it now a fact that the MAXWELL—which is one of the largest sellers of the present season—is a car that it is safe to buy. In point of reliability, economy and simplicity, it is a car that it is impossible to beat, as has been proved by its various achievements. We "hit the nail on the head" so to speak—when we designed and built a car which represents the maximum amount of service for the minimum cost of maintenance; an automobile which would be a source of pleasure instead of annoyance, and one which would be seen more often on the road than in the repair-shop; a car that would keep down the cost of up-keep, and go every day in the year.

¶ It is because of these facts that the MAXWELL is to-day universally known as the "Perfectly simple and simply perfect" automobile. A demonstration from any of our agents will convince you that it is the car for you to buy.

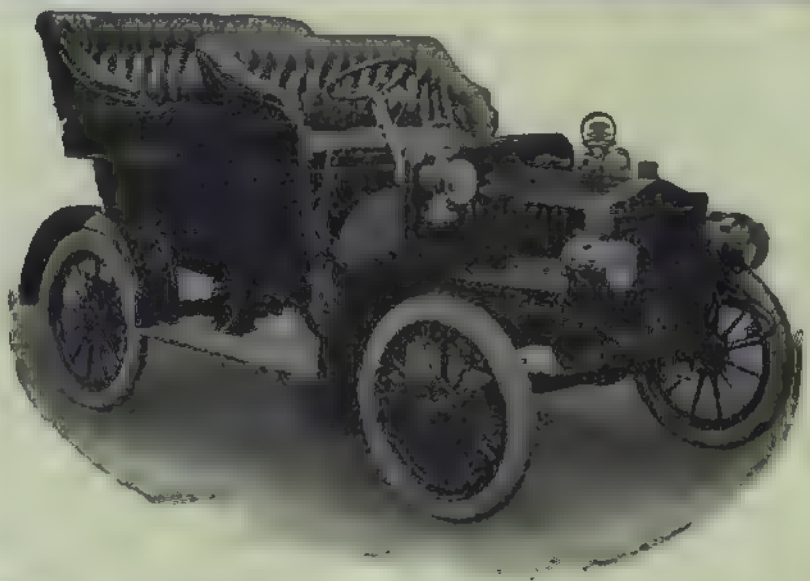
Write for catalog giving full details of the various models

Maxwell-Briscoe Motor Company

TARRYTOWN, N. Y.

Member American Motor Car Manufacturers' Association.

The "Maxwell"



The Touring Car

16 H. P. PRICE, $1400

In power, speed and appearance this car compares favorably with $2500 automobiles owing to the simplicity of construction, excellent material and careful workmanship, the cost of upkeep is trifling. It is a touring car in the true sense of the term, and is just the automobile for the man who wants a large, roomy, handsome car not too expensive to operate.

Among the features of great practical merit found only in the **MAXWELL** are

Planetary chain running in oil.

Three-point roller supported bevel gear.

Transmission and crank case of one aluminum casting, insuring perfect, permanent alignment.

The **MAXWELL** method of three-point suspension.

Self-oiling, universal joints.

Pumpless cooling system.

It is the "Perfectly simple and simply perfect" automobile.

Send for catalog.

Maxwell-Briscoe Motor Company

TARRYTOWN, N. Y.

Members American Motor Car Manufacturers' Association.

A. F. CHASE, Central Western Representative

"The Maxwell"

The Tourabout

PRICE, $750.00

The **Maxwell Tourabout** is without a peer in the automobile world. There is no two-passenger car, selling at $750 that anywhere near approaches it in either appearance, service or economy of maintenance. It has a double opposed 8 H P engine underneath the hood, making it easy of access. The planetary transmission is attached directly to the motor, thus placing all the vital working parts under the hood, an advantage which will appeal to the experienced automobilist. The body is of metal, of the latest and most approved type.

It is the Tourabout which ran a thousand miles without stopping the engine, on an average gasoline consumption of one gallon for every 19 miles.

Write for catalog, which will tell you more about this "Perfectly simple and simply perfect" automobile.

Maxwell-Briscoe Motor Company

TARRYTOWN, N. Y.

Members American Motor Car Manufacturers' Association

A. F. CHASE, Central Western Representative

there was very little variation in the time, the different miles varying from 1 minute 7 3-5 seconds to 1 minute 6 1-5 seconds. After this point in the race, the car which was driven by Clemens showed a little better speed and made miles from 1 minute 5 seconds to 1 minute 5 4-5 seconds, while a little later it dropped to 1 minute 4 1-5 second, then to 1 minute 3 seconds, and finally to 1 minute 2 3-5 seconds on the eighty-eighth mile.

On the ninty-fourth mile, a tire on Mr Clemens' car exploded; at that time he was 2 minutes 19 3-5 seconds inside of his former record made in the 100-mile race of November 4th He lost 7 minutes and 18 seconds in having his tires replaced and succeeded in breaking the 150-mile record, in spite of this loss of time, by 13 minutes 5 1-5 seconds

The second car, driven by Merz, fell slightly behind and on the 151st mile Clemens' car struck the fence on entering the home stretch owing to the fact that it was growing dark and the track was not yet illuminated.

Mr. Clemens hit the fence four or five times before his machine finally swerved and went through, breaking the front wheels and bending the frame slightly and ruining the radiator but doing no further damage.

After that the two men alternated at intervals of 50 or 100 miles.

As the race continued, the surface of the track was steadily ground down near the pole which resulted in the exposure of very sharp gravel underneath, resulting of course in frequent tire changes.

During the whole night, the car kept up a uniform performance and notwithstanding its many stops for tire replacements, succeeded in breaking the various records mentioned above.

The average speed maintained during the 24 hours including stops was 45 7-12 miles per hour, and the time made at 650 miles was 14 hours 4 minutes and 51 2-5 seconds:

At	700	miles,	15	hours	10	minutes	39 3-5 seconds.
At	750	miles,	16	hours	20	minutes	45 2-5 seconds.
At	800	miles,	17	hours	17	minutes	28 -5 seconds.
At	850	miles,	18	hours	23	minutes	44 2-5 seconds.
At	900	miles,	19	hours	44	minutes	49 1-5 seconds.
At	950	miles,	20	hours	54	minutes	57 3-5 seconds.
At	1000	miles,	21	hours	58	minutes	4-5 seconds.
At	1050	miles,	23	hours	7	minutes	23 seconds.

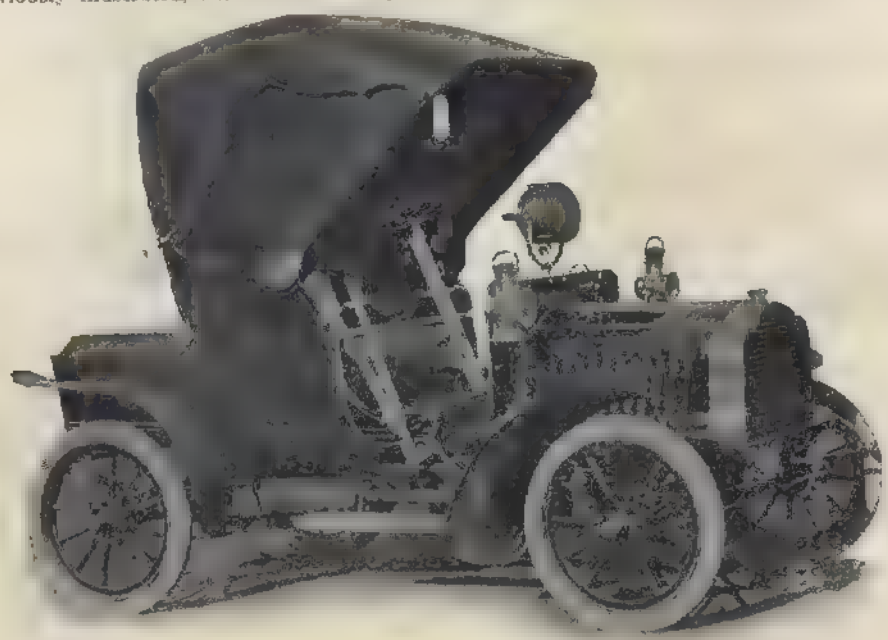
Total time lost during the 24 hours for tire repairs, refilling of gasoline, oil and water tanks, was 2 hours 54 minutes and 12 seconds, making the actual running time 21 hours 5 minutes and 48 seconds, showing an average speed while actually running of 51 9-10 miles per hour.

1906 Compound Cars

E. S. FOLIAMBE B. S

The E. H. V. Company, Middletown, Conn., originators of the Compound, offer for 1906, besides their light touring car, a doctor's runabout of original design

The specifications and dimensions of the light touring car, Model 4, which we have perviously illustrated, are motor three-cylinder vertical, two high pressure 4 x 4 inch, and one low pressure 7 inch bore by 4 inch stroke, rated 12 and 15 H. P. Sliding gear, three speeds forward and one reverse, jump spark ignition by dry battery, shaft to bevel gear drive, wheel base 82 inch, tread 56½ inch, wheels 28 x 3½ inch tires, side entrance tou-

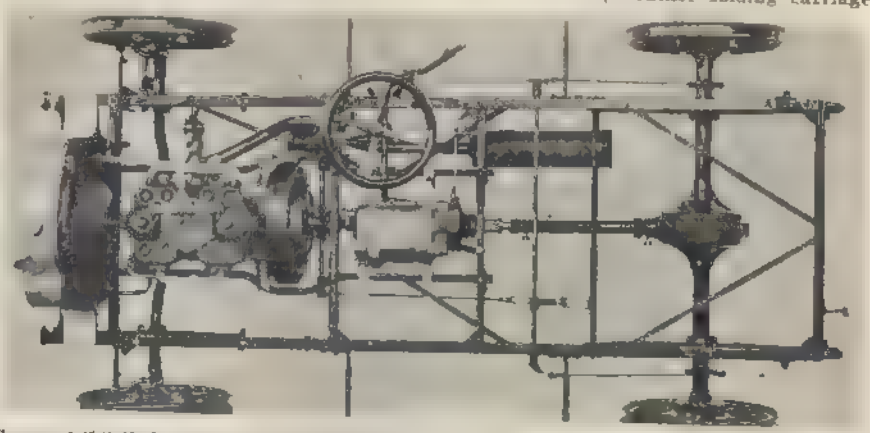


Compound Doctor's Stanhope mounted on regular 12-15 H. P. chassis. Price, $1400.

neau, four passengers, weight 1600; price, including lamps, horn, tools, etc., $1400.

The frame is of pressed steel stiffened by cold riveted gusset plates of good size. The engine sub-frame is also pressed steel of channel section, and forms the transverse stiffening members of the frame.

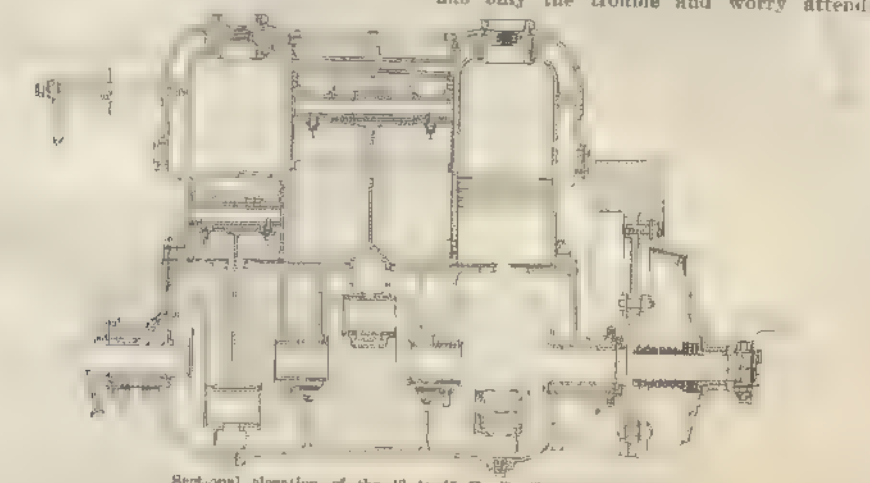
The springs are semi-elliptic, 39 inches long, both front and rear. Either plain or ball-bearings are furnished for wheels. The front axle is heavy seamless steel tubing, as is also the casing of rear axles surrounding the line shaft. The differential is of the spur gear type, the gears having exceedingly wide faces and ample bearing surface. The bevel gear reduction is 3.04 to 1 or one turn of the wheels to 3.04 turns of the engine shaft on the high gear.



Compound 12-15 H. P. chassis, plan view, pressed steel frame, tubular encased rear axle, tubular front axle with forged knuckles and sliding gear transmission.

The body is aluminum throughout, beautifully finished and fitted with hair upholstery. The tonneau is comfortable and has a roomy side entrance. The material and workmanship are much better than is usual with low-priced cars. Every nut, bolt, screw, and even washers, used in the construction are heavily copper-plated to prevent rust. All nuts, bolts and adjustments are locked.

The specifications of the doctor's car as regards the engine and chassis, are identical with Model 4. The accompanying illustration gives a good idea of its general appearance. Much care has been exercised in keeping the body free from mechanism, and this gives an exceedingly large carrying space. The upholstering is more on the order of a carriage than an automobile. Even convenient side pockets suitable for papers and small articles, are provided in the upholstery of the arms. A heavy leather folding carriage top upon a two-cylinder engine, since only two is fitted with hanging loop for arm support. The top, in connection with a rubber boot, makes an excellent storm equipment. This car, fitted as it is with a 15 H. P. three-cylinder balanced engine, practically noiseless, has only the trouble and worry attend nt



Sectional elevation of the 12 to 15 H. P. Compound Engine.

cylinders fire and have plugs, consequently it ought to be a very popular one with the profession.

A model 5 of 98½ inch wheel base, Victoria body of graceful design and practically the same chassis as the other cars, is also to be added to the line of this company's cars. Any of these models may be had with side chain drive if desired

THE COMPOUND MOTOR

Only one size engine is built for all three models. This is a compact three-cylinder engine, all cast in one piece, having two high pressure cylinders in which explosions take place, and one low pressure cylinder of larger diameter in which no explosions occur. The low pressure cylinder is placed between the two high pressure cylinders, which are each four inch bore, while the low pressure is seven inch bore, the stroke of all three cylinders being four inches.

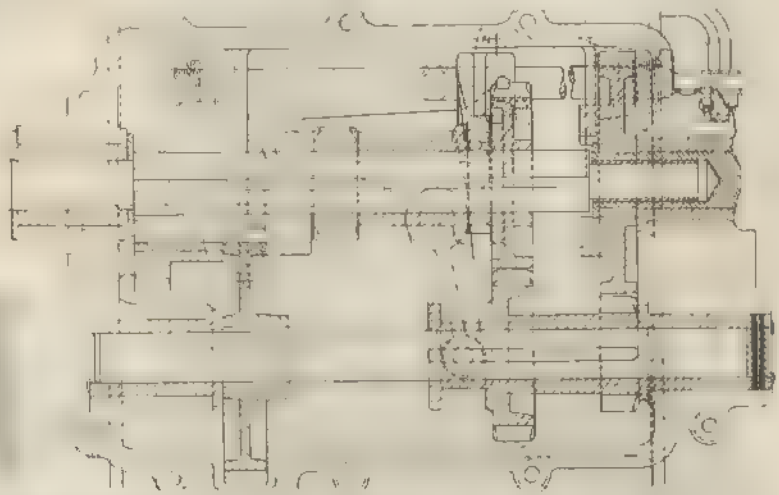
For the benefit of those who are not familiar with the Compound engine, the action is briefly as follows: One high pressure piston is on a power stroke while the other is on an intake stroke. Each exhausts in turn at the completion of its power stroke into the low pressure cylinder. Thus it will be seen that every down stroke is a power stroke, but without explosion, so the engine has an impulse every half turn just as a four-cylinder, but with only the complications and ignition troubles attendant on two cylinders. This action is possible, owing to the fact that the cranks are set at 180 degrees apart. The two high pressure pistons act together and in the opposite direction to the low. The low pressure piston, being heavier than the combined weights of the two high is accurately balanced by extending the high pressure crank webs on the opposite side of the shaft, to form counter weights. The valve arrangement is as follows: On the right side of the motor are four valves mechanically operated, two being inlets to the high pressure cylinders, and two, their exhausts. On the left side of the engine are four more mechanically operated valves, two inlets into the low and its two final exhausts. All these valves are interchangeable, and are made with cast iron heads riveted on to steel stems. The lower ends of the stems are provided with hardened pieces to resist the wear of [illegible]. The push rods are adjustable [illegible] and carry a hardened ball at the lower end for contact with the cams, instead of the usual roller. The valve springs are [illegible] inch diameter and of light weight [illegible] a washer resting on a split [illegible] into a shoulder. This spring can be removed by lifting up and removing the split washer. Inlet pipes are 1½ inch diameter outside brass castings, held in position by slotted hexagonal headed cap screws and made tight by wire asbestos gaskets. The exhaust pipes, contrary to the usual custom, are also brass. This is possible owing to the fact that the exhaust of this engine is practically cold, all the heat left in the gases being used for work in the low pressure cylinder. The cam shaft is ⅝ inch diameter, cams keyed and pinned to the shaft. The cams are steel case hardened and ground. The crank shaft is hand forged with a disk formed at one end for bolting on the flywheel. The crank shaft is supported on four bearings, the middle bearings being held by yokes, double lock nuts and cotter pins. The bearings are all of bronze with longitudinal strips of bass wood [illegible] inch wide set in. This wood has replaced the strips of babbitt previously used.

Rear View of 12-15 H. P. Compound Motor, showing arrangement of [illegible] and mounting in sub-frame.

The two cam shafts each carrying four hardened steel cams and supported in four bronze bushed bearings are driven from a small gear on the engine shaft through an idler on each side to the gears on the cam shaft. All these gears are inside of the crank case, the ends of which are so arranged that the cam shaft and gears can be easily withdrawn. The flywheel is cast iron of about one hundred pounds weight with a webb and no spokes. This webb is held by six bolts to

the crank shaft disk. The clutch is of the self-contained cone type, leather faced, the leather fastened by screws with counter-sunk heads. The body of the clutch is a light bronze casting with spokes, the rear end forming a yoke fitting into a cast steel piece pinned and keyed to the transmission shaft, making a flexible connection. This clutch being forced by a spring engages the surface of a cone bolted to the back of the flywheel and gives no end thrust on the engine bearings.

The connecting rod is a bronze casting of I section split at the lower end with the usual cap fastening. Bass wood strips are also used at the crank pin end. The wrist pin is 1 inch diameter hollow steel hardened and ground, held from side dip by set screws with long cotter pins through their head, which by bearing against the piston walls prevent the set screws from loosening.



Sectional drawing of the E. H. V. Co.'s Compound 3-speed forward and reverse transmission.

OILING

Splash lubrication is employed. A triple sight feed, belt driven lubricator is placed on the dash. One feed leads into the side of the low pressure cylinder in whose piston oil rings are cut. The other two lead to the two compartments of the divided crank case. The motor is fitted with the well-known Schebler Automatic Carburetor.

COOLING

A tubular cooler of large surface, guaranteed not to leak, acts also as tank from which the gear pump direct connected to the end of the cam shaft, draws its supply, forces it into side of valve chambers into engine jackets and out at the head through brass pipes back into the top of the radiator. A draw off cock is placed in the brass pipe at the top. An aluminum bladed, belt driven, ball-bearing fan draws air through the cooler.

TRANSMISSION

The transmission is a sliding gear three speeds forward and reverse. On the high gear the drive is direct, the lay shaft standing still as the gear which drives it is thrown out by a lever and thrown into action again by a spring. The gears are of the best nickel steel, bevelled almost to a sharp edge which facilitates shifting and reduces the noise.

IGNITION

Jump spark ignition is used, there being, of course, only two plugs. Current is furnished from a dry battery under front seat. A single coil and distributor are employed. A choice of coils either vibrating or non-vibrating is given the purchaser. The combined timer and distributor is placed on the end of a vertical shaft bevel gear driven from the front of the cam shaft. The small bevels are encased as are all the other gears used.

CONTROL

The spark and throttle levers are situated on the steering post under the wheel, the lower lever being the throttle and the upper one the spark. Two push pedals are provided, one for the clutch, the other operating on a double acting strap brake or contracting steel band on a bronze drum at the rear of the transmission on the driving shaft. The brake may be applied with the clutch in for purposes of steadying down the car and, if necessary, at the same time using the engine as a brake. The lever shown on the outside is the emergency ratchet brake and operates by tension rods the internal expanding band brake on the hubs of the rear wheels. This brake releases the clutch. The steering wheel acts on a worm and sector through rods fitted with adjustable ball and socket joints to the steering knuckles. The knuckle and yoke are drop forgings pinned and brazed.

The E. H. V. Co. deserve much credit for the able manner in which they have brought out and developed this new type of gasoline motor. They proved in the late New York Motor Club National Economy trials conclusively its economy and consistent running by outclassing all touring cars in the contest of seven hundred miles, in which only 43½ gallons of gasoline were consumed.

Many experiments have been and are now being made at their extensive plant for the

further development of this type of motor. A new and complete testing plant has lately been installed. This consists of the stand, a specially designed clutch on the end of a dynamo shaft, a bank of lights, volt meter, ammeter and an electrical revolution counter The lights are used simply as a means of absorbing the current generated by the dynamo, and no attention is paid to the number of lights which could be lit, the volt meter and ammeter giving a much more accurate indication of the current. From these readings by interpolation from a carefully prepared and corrected power curve for the dynamo a very accurate determination of the power generated is possible. A series of tests have also been carried out upon the engine by the use of the indicator for the purpose of determining the exact effect of cams of different profile and setting, upon the power and the distribution of the work between the high and low cylinders. In these experiments the engine speeds were kept below 500 revolutions per minute, for it is well known that this instrument does not give reliable information at the high speeds at which gasoline engines develop maximum power, but used in the manner and for the purpose described it has developed much new and useful data in connection with compound gasoline engines

"Thompson" Steam Wagonette

The "Thompson" 8-10 passenger steam wagonette is manufactured by the Thompson Auto. Co., Olneyville Square, Providence, R. I.

The wagonette is equipped with an 8-10 H. P. "Fitzhenry" encased engine, 10 to 12 H. P. Tonkin "Dry Plate" boiler: steam "Victor" water and air pumps; power and hand fuel pumps; copper fuel tank, capacity

The "Thompson" 8-10 Passenger Steam Wagonette.

15 gallons, fuel pressure tank, supplied by power and hand pumps, having only one quart of gasoline under pressure; automatic fuel and steam pressure regulators; galvanized iron water tanks placed under the passenger (side) seats; nickled plated 3 in. face steam and fuel pressure gauge; feed water heater and muffler; wheel steering by triple thread screw and nut; foot brake double acting operating on the brake drums on each driving wheel; tubular steel running gear with heavy hickory wood reaches; extra heavy Brown-Lipe differential gears; Baldwin roller detachable chains; artillery wood wheels 30 in. and 32 in. in diameter, fitted with American roller bearings, and 2½ in solid rubber "Diamond" tires; patent leather dash board; canopy top (wood frame) with curtains; storm boot for operator; cushions brass foot rail and trimmings; French brass horn; brass side lamps; Rushmore search light and generator; water gauge lamp, extra steam water pump and a full set of tools and supplies

The body is painted Royal Blue; running gear, "Road Cart Red," canopy top is finished in natural wood. The car weighs with water and gasoline 3200 pounds. It will speed with present sprockets on engine which are for hill climbing) from 12 to 20 miles an hour, and will climb any hill in reason with full load. All valves are controlled from the operator's seat

The total length of the machine is about 10½ ft.; height, 8 ft.; tread, 5 ft.; wheel base, 8½ ft. Ogee panels on body are made of Russian iron so that it will not warp or crack. With the exception of one or two pieces on the machine, the parts are made of hand forged Norway iron or steel. Price is $2200, f. o. b. Providence.

The Columbus Buggy Company's 1906 Two Passenger Electric Vehicle

HUGH DOLNAR

The Columbus Buggy Company, Columbus, Ohio, U. S. A., began business in 1870 with a capital of less than $500.00, as "The Iron Buggy Company," producing at first a "piano box buggy" with body, seat and dash all of stamped sheet iron. This metal buggy sold well, several thousands of them finding purchasers. Other styles of light vehicles were added as years passed, and at the beginning of 1905 this company was one of the largest manufacturers of fine, light vehicles in America, with ten acres of factory floor surface in new brick buildings, unusually well lighted, and fully equipped with electrically driven machinery especially adapted to its lines of product.

Fully believing in the large permanent use of mechanicaly driven wagons, The Columbus Buggy Company began as automobile builders by producing, in April, 1905, the light electric

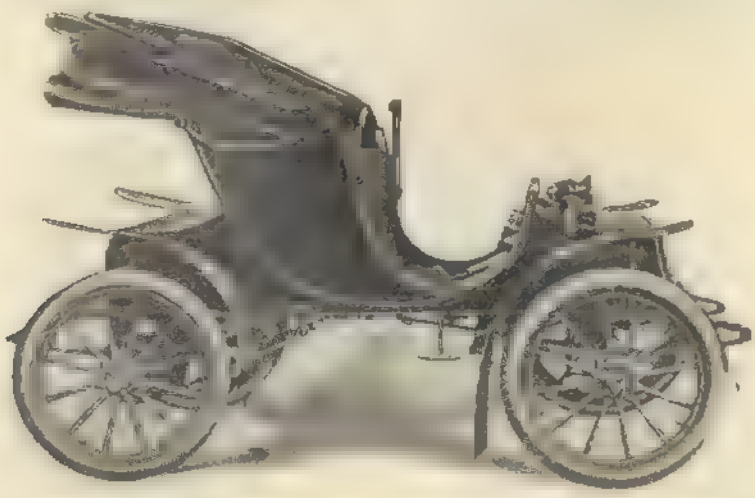


Fig. 1. [illegible] 1906 Electric Vehicle. 50 to 75 miles on one charging according to the [illegible] up to 20 miles per hour. Can be worked without skilled attendance. All [illegible] roller bearings. Integral wiring. Weight 1540 lbs. Price $1600.

car which was illustrated in our June issue. It has a folding "American" top, to seat two passengers; wheel base 67 in.; wheels 30x3 in. gage 51½ in., total weight 1540 lbs., price $1600.00. The motor is an "Elwell-Parker" No. 1, 2 h. p., driven by 400 lbs. of storage batteries, 24 cells, 12 cells in front under the hood, and 12 in the rear under a cover hinged to the back of the seat, so that all the batteries are very readily accessible to an attendant standing upright on his feet, the arrangement of the cells being such that replacement of cell-jars or repairs of connections can be made without taking the batteries out of the car. The body is fastened to the chasis frame by four bolts, and has no part of the machinery fastened to it, except the top steadiment of the nearly vertical steering post which has the horizontal steering lever jointed to its top end. When the body is removed all of the mechanism is fully accessible.

NOTABLE FEATURES

The wiring, or arrangement of the conductors which convey electric current from batteries to motor, is of great importance in an electric vehicle. The insulated wires should be placed so as to be every one accessible, and so that no liquids from the cells can reach the wires and injure the insulation.

In this car the framing is of metal, and the entire system of wires is made up over a form, so as to constitute an integral unit of such form as to lie snugly inside the steel chassis frame, all the wiring being so placed that nothing from the battery cells can reach it, and so that the entire wiring can be handled into and out of the car in one piece, as shown in Fig. 2. Because the terminals of the conductors are all in their proper places to meet their battery and motor terminals, the wiring can be connected by any person who can turn a screw, with no technical knowledge whatever.

A most prominent feature in this new electric car, and one of the highest practical value, is the introduction of a channel steel chassis frame, to which all the machinery of the car is fixed, nothing being fastened to the wooden carriage body, except the top steadiment of the steering post. This construction has all those advantages of permanent retention of parts which are known to be indispensable in a car, but which are

new in an electrically driven passenger vehicle

The drive is by a cross shaft, having sprockets on its ends which take chains to the rear wheels. The motor, controller, cross shaft and entire assemblage of driving controling elements are assembled on an aluminum casting sub-frame, as shown in figure 3

screw rods, which are supported on battery sub-frames of light angle-steel, resting on dropped chassis frame cross-members of light channel steel. The wood frames, screw-rod tightened, hold the 12 cells of a group firmly together and at the same time permit the easy removal of any single cell of a group without disturbing any other.

Fig. 2 [illegible] wiring system is made up [illegible] wires [illegible] of [illegible] assembling [illegible] assembling [illegible] the [illegible] car without [illegible] assistance.

Particular attention has been given to the arrangement and support of the 24 cells of batteries; first, these are divided into front and rear groups of 12 cells each, placed respectively over the front and rear axles.

The controller and reversing levers rise through the seat at the driver's left hand, the controller applying the brake, C, after it has retarded the motor.

It will thus be seen that in the construc-

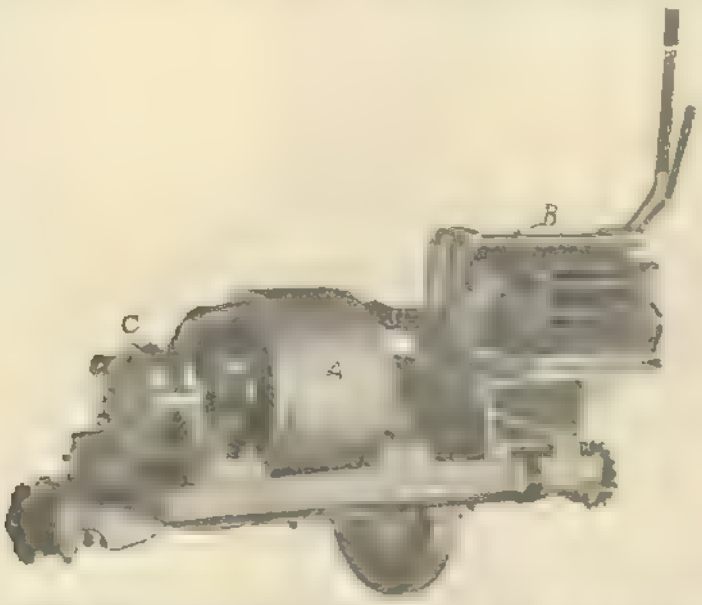


Fig. 3—Columbus Buggy Co.'s Electric Vehicle; sub-frame with motor, A, motor, B controller, and C, brake on the motor shaft. The [illegible] chains are [illegible] rear [illegible] the [illegible] wheels. This is believed to be the first instance in which the entire motive assembly of an electrically driven car has been placed on an integral sub-frame. Integral lugs carry the cross-shaft bearings, cupped on the underside so that [illegible] car without disturbing anything else.

Next, these twelve cells are divided into three groups of four cells each, making units so small and light as to be very easily handled These three banks of four cells each are arranged in wooden frames, tightened with

tion and placing and fixing of the individual elements of this electric car, the same general design expedients employed in the best motor cars have been followed, the parts being assembled in related groups, and these groups

secured to the single channel steel chassis frame, making the most substantial and easily separated arrangement of elements possible. It is almost as needful to have a hard driven machine easily pulled apart, as it is to have it readily assembled and firmly fixed and supported in its working form.

all the spring movements are perfectly accommodated without twisting stresses.

THE CHASSIS FRAME

This is channel steel, 1½ in. on the bottom, 2 in. high, vertical member inside, and ⅝ width of horizontal top member, all ⅛ thick. The frame sides and ends are in one

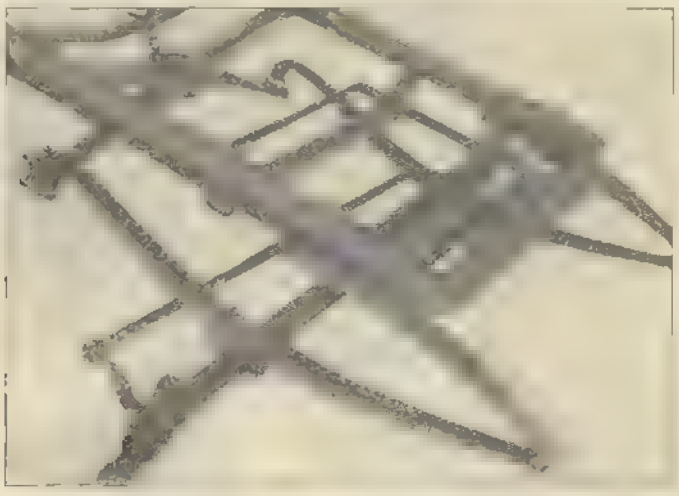


Fig. 4—The [illegible] Electric Vehicle [illegible] French platforms. This is one of the best and most economical spring arrangements used in five forms, [illegible] long, and makes these cars extremely easy riding.

The 30 in. x 3 in. wheels have steel hubs. The front wheels are carried on roller bearings, as are the rear axles.

The rear springs are full elliptics, 36 in. long. The front springs are of the form

integral bent piece, joined by an angle steel fish-plate and rivetting in the middle of the front cross-member, and stayed with angle plates at all the corners, making a very light, stiff and elastic structure, of great strength

Fig. 5—Chassis and batteries of the Columbus [illegible] Electric Vehicle. The batteries are assembled in two groups, on independent steel frames, while the motive and controlling assemblage is supported on an aluminum sub-frame, which carries the cross-shaft underneath. This motive assembly is placed well to the rear, under the passenger seat, so that traction weight is obtained from the rear battery group, the motive parts and the passenger load, making about two-thirds of the total working car-weight on the rear axle.

known as "French Platform." The elliptic part of the front springs is same length as rear springs, 36 in.

The struts are long right and left threaded sleeves, taking right and left screw shanks integral with trunion supported eyes, so that

for its weight. This frame has two dropped cross-members, also of channel section, at each end to carry the batteries, and the motor sub-frame, bolted to the chassis frame at about 1-3 of its length from the front, ties the chassis frame together at that point.

The wooden sills of the body fit the outside of the top chassis frame member, and descend to rest on top of the bottom frame member, to which the body is held by four bolts

The body is of handsome design. The brakes are internal bronze shoes, rocker expanded, brake-drums 7 in. dia. by 1¼ in. face, integral with the rear wheel hubs, shoes applied by a pedal in the middle of the footboard. The meter is placed inside the dashboard, as usual.

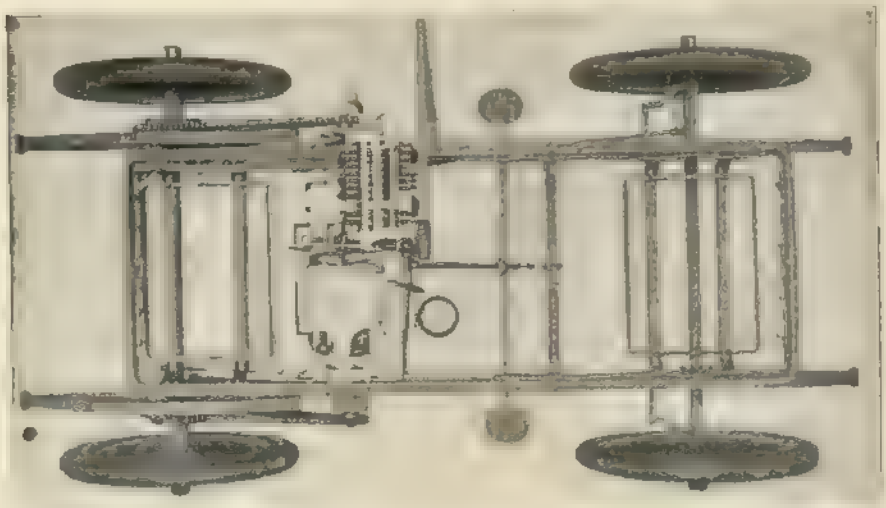


Fig. 6—Columbus Buggy Co.'s Electric Vehicle chassis, upper side. The integral wiring assemblage is seen just inside the chassis frame, where it obtains perfect support, and all possible protection.

single seat is 42 in. wide by 20 in. deep, with a back 23 in. high. These unusually ample dimensions make most comfortable seating for two passengers. The upholstering is either leather or cloth, of first quality, as the purchaser may select. The top is a regular three-bow with "Gypsy" side curtains, or of the regular closed "Physician's" style.

Fig. 7—Columbus Buggy Co.'s Electric Vehicle, rear wheel, steel casting hub, internal brake-drum integral with flange to which the hardened sprocket is fixed by rivetting, the whole structure having the fewest parts suitable, and being so held together as to make dislocation impossible without breakage.

The ordinary brake on the motor-shaft is a steel drum, 4 in. diameter by 1¼ wide, fitted with hinged bronze shoes, metal to metal, shoes applied by continued movement of the controller lever to the rear. The emergency

Steering is by a horizontal lever, jointed to the top of the steering post, carried up outside of the body at the driver's left. The driver sits on the left side, as is usual in electric cars, so as to steer with his right hand on the horizontal lever grip, while his left hand in natural position rests upon the controller lever close to the reversing lever. The direction of rotation of the motor is changed by reverse lever manipulation, the controlling lever and reversing lever being interlocked, so that the reversing motion cannot be made while the current is applied to drive the motor forward.

The bearings are Hess-Bright ball bearings for the motor and cross-shaft, and roller bearings in the wheel hubs.

The motor pinion is rawhide, with bronze shrouding; the cross-shaft gear and balance gears are steel. The whole of the working parts are of the first quality, both as to material and workmanship

ON THE ROAD

Several short runs on Columbus streets showed this fine electric vehicle to be a good hill climber, and one of the first of these cars has a record of 71 miles of town travel on one charge.

August 15th, Arthur Moore driving, the car left the State House and ran to the Country Club, 9 miles out on East Broad street, in 38 minutes. Broad street is fair asphalt paving for three miles out, and then the very worst piece of paved highway on the face of the earth. It once had a thin layer of asphalt, which is now full of holes everywhere, and in many places had disappeared completely for stretches of 10, 20, 30 or 40 feet, these bare places being deep mud holes. In all the writer's experience of bad roads

the equal of East Broad street has never been met. Over this truly horrible surface the splendid little car ran at a fair rate with no discomfort to passengers it carried, its springs being so artfully contrived that the very worst bumps do not "toss" the occupants of the carriage at all. For certain purposes the electric car is better than any other motor wagon, and the easy riding of this car over the wretched road was a pronounced surprise to the writer, who has never seen anything else to compare with the springing of this Columbus Buggy Co.'s Electric Vehicle.

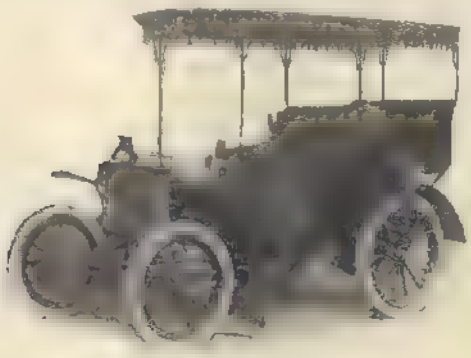
Nothing could be better for physicians' use than this Electric, where charging stations are to be had, and the average range of 50 or 60 miles on one charge is quite sufficient for the requirements of the country doctor

The excellence of the bearings, Hess-Bright and cone-rollers was shown by the rapid coasting of this car on almost imperceptible road inclinations. This is a very valuable feature in storage battery driven cars, as perfection of bearings not only means long stretches of rapid running down slight inclines with no current at all turned on, but greatly reduces the current expenditure on the level and in hill climbing. It is safe to say that the 24 battery cells of this car give double the range that could be had with the very best plain bearings, no matter how good the lubrication might be.

One of the Electric machines tested by the Boston Auto Exchange on the roads and hills around Boston ran 73 8-10 miles on one charge of the batteries and developed a speed of 20 miles per hour

"Duryea" 1906 Cars

We show herewith 3 new vehicles which will be supplied during the coming year by Duryea Power Co., of Reading, Pa. The folding rear phaeton, is shown with canopy covering both seats, but is supplied with a

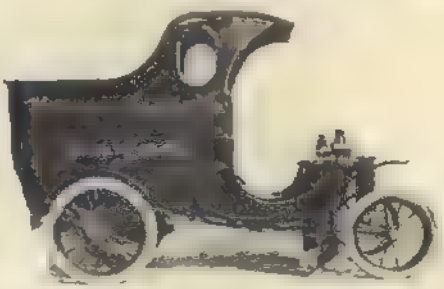


"Duryea" 1906 Folding Rear Phaeton. Price $ 550.

regular buggy top or with a cape top, the rear portion being detachable. These vehicles use the regular Duryea mechanism, in which there has been little or no change, except the perfecting of details necessary to secure the best results. The rear seat of this phaeton is slightly wider than the ones used this season, and is claimed to be more comfortable than the rear seats of most Tonneaux. This added comfort is secured by the long springs and large rear wheels.

The side entrance Surry is supplied with or without doors, and with cape top or canopy top as desired. It also has large rear wheels, which they say give long life to the tires as well as great comfort to the passengers. The front tires are 30x3, rear 30x3½. These vehicles have ample clearances for very rough country roads, and the bodies are so shaped as to deflect dust downward instead of upward

The light delivery wagon is one of special



"Duryea" 1906 Light Delivery Price $1250.

order and peculiar shape. These delivery bodies can be made any shape or style desired as well as a variety of sizes. The driver sits low and can mount and dismount quickly and without fatigue.

"Duryea" 1906 Side Entrance Tonneau Price $1400

The Knox Motor Truck Co. are located in their new plant on North Main St., Springfield, Mass., where they have a capacity for turning out one complete truck per day.

It having come to their notice that one or some of the manufacturers are copying the lines of their dust proof body, the E. R. Thomas Motor Co., Buffalo, N. Y., have given notice that this is an infringement of their patent, No. 37215, and that same will be prosecuted according to law.

Logan 1906 Cars

W. J. GRUBE.

The original Logan car was built in 1901 at Chillicothe, Ohio, by B. A. Gramm and J. L. Schilders, in a shop 18x30. This early model was propelled by a 4-cylinder vertical motor, has a planetary transmission and shaft drive. No car of this model was marketed, although the car operated fairly satisfactorily, but proved too light in power, and so expensive to build that it was abandoned as a commercial impossibility.

Mr Gramm's next experiments were with a single cylinder motor, planetary transmission and chain drive, and a few cars of this type were built and sold during 1902. These cars operated in a very satisfactory m[illegible] and in all 25 cars of this type were built during the early part of the season of 1903

In the fall of 1903 a car with 2-cylinder opposed type, water-cooled motor and sliding gear transmission, was brought out, and after this model was tested out the business was incorporated as the Motor Storage & Mfg. Co., with a capital of $30,000. The Motor Storage & Mfg. Co. marketed 64 cars during 1904. In the fall of 1904 the company was reorganized and the capital increased to $100,000, and the name changed to the Logan Construction Co. This year this company marketed 164 cars, and at a meeting of the stockholders, in September, again increased the capital stock to $150,000.

The company's factory at present has 17,725 square feet of floor space and a new addition 140x45, three stories high, is in course of erection, and still another of the same size planned, which they expect to have completed and ready for occupancy by April 1st, 1906.

The Logan Company expect to build 300 machines for next season, and have the materials contracted for for this number. In addition to the 28-30 H. P. water-cooled Touring Car and Truck, briefly described in our September and November issues, they have ready for the 1906 trade two new cars, an 8-10 H. P. runabout and a light delivery car, both air-cooled

LOGAN MODEL F AIR-COOLED RUNABOUT

A new runabout has just been completed and tested by the Logan Co that differs in essential features from anything heretofore produced by them. It was designed to meet the demand the company has experienced for a practical runabout to sell at a medium price.

In the designing of this car the Logan Co. have not attempted to produce an extremely fast machine, but rather to build a substantial car with plenty of power to negotiate most hills on the high gear and to give satisfactory service in the hands of the average

Logan 10 H. P. air-cooled Runabout, Model F; double opposed air-cooled motor, 4x4½ set [illegible] transversely in front under hood; wheel base 90 inches; gauge 56 inches; tires 28x3 [illegible] in., weight 950 lbs., price $900.

This new model is a nifty looking little machine, very quiet in operation, and seems to have an abundance of power, weighs 950 lbs. and sells for $900

The wheel base is 90 ins., track, 56 ins., wheels 28 ins. diameter, shod with 3-in tires.

The motor is mounted transversely in front, is directly connected to sliding gear transmission by band clutch. Drive is through shaft to bevel gear driven jack shaft mounted under seat, and final single chain drive to rear axle.

The frame is of 1½ angle steel, securely braced and trussed the full length. Springs are full elliptic, 36 ins. long in the rear and 30 ins. in front, with five leaves 1½ ins. wide. Radius rods 12 ins. long run from frame to rear spring eye.

THE MOTOR.

The engine is a 10 H. P. double cylinder opposed type, air-cooled. The cylinders have a bore of 4⅛x4⅛ stroke, cylinder and head cast integral. The head is flange-cooled; the cooling flanges are 1¾ ins. deep, and quite thin. The cylinder walls are turned

outside and cooling is effected by 32 copper flanges placed about ¼ in. apart, pressed on from the bottom.

The flanges that secure the cylinders to crank case are screwed and pinned to bottom of cylinder after cooling flanges are in place.

The valves are all mechanically operated and are arranged vertically, one above the other, the valve chambers being bolted to projection cast integral with head. The joints are all ground fit, and no packing is used. The valves are operated by bell crank and push rods actuated by cams on half time shaft, driven by a pair of spur gears.

The crank shaft is 1½ diameter, main bearings 3 ins. long. The crank carries ring oilers for oiling crank pins. Bearings throughout are of bronze. Connecting rod is drop forged, bronze bushed. Crank case is

Logan Model M Runabout, 2 cylinder air cooled, 10 H. P. engine; cylinders detached; flanges cooled; crankcase with open copper top with screen to prevent oil from being thrown out, fan has fibre blades; transmission 2 speed and reverse sliding gear.

of iron, left open on top, and fitted with a copper hopper that has an ingenious screen arrangement that allows cool air to get inside but prevents oil from being thrown out. This arrangement tends to keep the pistons cool and is said to materially assist in keeping the motor at a satisfactory temperature. The crank shaft also carries an 18 in. fan to assist is cooling. This fan has fibre blades and does not make the objectionable noise so noticeable where metal blades are employed.

TRANSMISSION.

This is a two speed and reverse sliding gear, set with direct drive on high speed and identical with the one on Model H (previously described), but smaller. Clutch of outside clamping band type, 1¾ face by 9 ins. diameter.

The jack shaft is stationary, 1 in. diameter, and carries sleeve which in turn carries driving sprocket and bevel gear. This sleeve is 9 ins. long and bronze bushed its entire length. The end thrust is taken care of by a ball end thrust bearing of generous proportions. The drive from jack shaft to rear axle is by ½x1 in. Diamond roller chain; chain line is 2 3-16 right hand of centre.

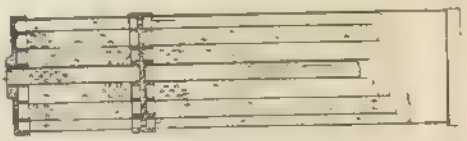
Front axle is of 6 gauge steel tubing, steering knuckles of Lemoine type. The front wheels run on ball bearings. The rear axle is a Weston Mott fitted with Hyatt roller bearings and Brown Lipe spur gear differential.

BRAKES.

The brakes, two in number, are of the double acting contracting band type, clamping on 6 in. drums 2 ins. wide on each side of differential. They are operated by foot pedal secured by ratchet.

The steering gear is of the rack and pinion variety, incased in aluminum housing, and steering wheel is located on left hand side, with spark and throttle levers arranged on quadrant immediately below. The gear and clutch operating levers are located in centre.

The carburetor is of the float feed spray type and specially designed for this motor, and is surrounded by a coil of brass pipe through which part of the exhaust passes.



The Logan muffler, which will be sold to the trade generally, is claimed by its makers to muffle the exhaust from the engine so thoroughly that the engine cannot be heard two feet away and that on testing with speed indicator on the end of the crankshaft, not a particle of the back pressure is discernible.

Ignition is by jump spark, a double cylinder vibrator coil and double set of dry batteries being employed.

Lubrication is by Essex exhaust pressure oiler, with individual leads to all bearings on oiler is located on dash.

The ratio of gearing is 4 to 1 on high gear which gives the car a speed of about 25 miles per hour. The car carries 6 gallons of gasoline, which is sufficient for 100 miles' running

The hood that covers the motor is so arranged that by opening hinged lid on either side gives immediate access to spark plugs without raising hood. The illustration shown shows the car without hood, which was not yet completed when photo was made, but with cardboard pattern for hood in place which of course does not do the car justice

LOGAN 10 H. P. AIR-COOLED LIGHT DELIVERY CAR.

The latest addition to the Logan line is a light delivery car, upon which the company have been experimenting for the past two years. This car has substantially the same power arrangement as the Model F runabout, but is built stronger throughout, and weighs 1450 lbs. Wheel base 96 ins., tread 56½. Wheels wood, extra heavy, artillery type, fitted with two in. Diamond side wire solid tires. Carrying capacity 1300 lbs. Price $1000

The writer had the opportunity of seeing this little car in operation, loaded with 1800 lbs. of cement, which it was delivering from the R. R. to the new buildings in course of construction, and although the springs seemed a little light for this load of 500 lbs. in excess of rated capacity, and bumped occasionally, the engine seemed to handle the load quite easily

The gear ratio is 5 to 1, giving a speed of approximately 15 to 18 miles per hour.

The gasoline tank, which is located on the seat, holds 6 gallons, and is sufficient for about 75 miles' running

The frame is 2½x1½x¼ ins. angle steel, trussed with ⅜ steel rod.

Springs full elliptic, 1¾x36 ins. long, 5 leaves

The engine and transmission and arrangement are the same as on the runabout, with the exception of final drive, which is heavier, a Diamond roller chain ⅜x1¼ being used.

Rear axle is by Weston Mott 1⅜ ins. diameter, fitted with spur gear differential and two Raymond brakes. The axle runs on 4 in. Hyatt roller bearings. The construction is heavier and the axle strongly trussed for the increased load. The front axle is solid, 1⅜ ins. diameter

The steering gear is of the usual Logan type, but mast is placed at angle of 15 degrees from vertical.

Throttle spark and transmission lever arranged the same as the runabout.

The Logan Co. report a good demand for this car, and have quite a few orders already booked, and are contemplating the bringing out of a larger delivery car in a short time

Logan 10 H. P. air-cooled light delivery, same engine and transmission as Model F runabout; wheel base 96 inches; tread 56½ inches, weight 1450 lbs.; carrying capacity 1300 lbs.; 2-inch solid tires price $1000.

MODEL H, LOGAN TOURING CAR.

This model, which was briefly described in September number, is built on substantially the same general lines as the 1905 model, but larger and stronger throughout, the power having been increased from 20 to 28-30 H. P. It has a large, roomy side entrance tonneau, wheel base increased to 100 ins., tread 56½, wheels 34x4. Weight 2000 lbs. Price $2000

THE CHASSIS FRAME.

The frame is of angle steel 1¾x2½x5-16 thick, with corners braced by gusset plates, and is trussed the full length of frame. Radius rods run to both front and rear axles from a special shaped casting that is riveted in centre of frame and extending down to a point 6 ins. below the frame. This arrangement equalizes the road shock and causes the jar to be communicated to all four springs alike, as was demonstrated by standing on one corner of chassis frame and tetering, when all springs moved in unison. The rear radius rods have turn-buckles with right and left screws for the adjustment of the chain.

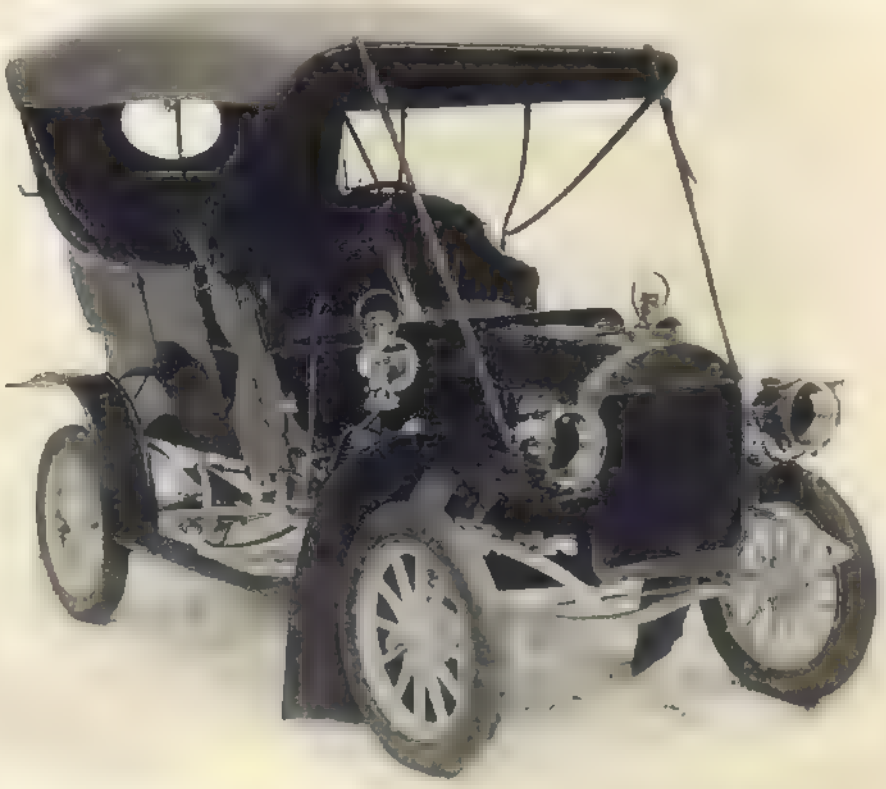
The springs are full elliptic, 36 ins. long, 6 leaves 2 ins. wide in rear and 6 leaves 1¾ ins. wide in front, and have an opening of 9 ins. The spring hangers are attached

to chassis frame by special bracket, which is in turn bolted through slots in frame, which allows the chain to be adjusted, but keeps springs in a horizontal position.

THE MOTOR.

The 2-cylinder horizontal opposed type water-cooled engine is mounted well forward and lengthwise of frame, with transmission direct connected with band clutch to fly-wheel, and by final single chain drive to rear axle. The engine is similar to the 1905 design, but is larger and has been strengthened wherever needed, and more generous bearings provided.

Cylinders are 5½ bore by 6 ins. stroke, cast of hard grey iron, and are ground and lapped



The Logan Model H 30 H. P. touring car with top, wheel base 100 inches, tread 56½ inches, tires 34x4 inches, engine double opposed 5½x6, water-cooled, transmission on sliding gear, 2 forward one reverse; weight 2000 lbs., price $2000

The cylinder and head are cast integral and fitted with false head for cleaning water jackets, which extend for ¾ in. past the end of the stroke

The pistons are of hard grey iron and supplied with four rings. The rings are of the returned variety and tongue lapped. Pins are of hardened steel, working in bronze bushing in the end of connecting rod. The pin is secured in piston by set screw registering with hole in pin.

Connecting rods are drop forged steel, the piston end being solid bronze bushed, the crank end being open and supplied with steel cap. The crank pin bearing is made of bronze, cast in gridiron form and babbitted, giving a surface half bronze and half babbitt, and possessing the lubricating qualities of the babbitt and the hardness of the bronze, and should the bearing heat and melt there would still be enough bronze bearing to allow the engine to run for an extended period. The rods are grooved lengthwise for oiling piston end

The crank shaft is of hammer forged steel cut from solid billet, all bearings 1⅝ diameter, the crank pin bearing being 2½ ins. long, main bearing 2¾ ins. The crank carries ring oiler for oiling crank pins. The crank case is of aluminum, and made in three sections, allowing adjustment of cranks and rods without dismantling the motor.

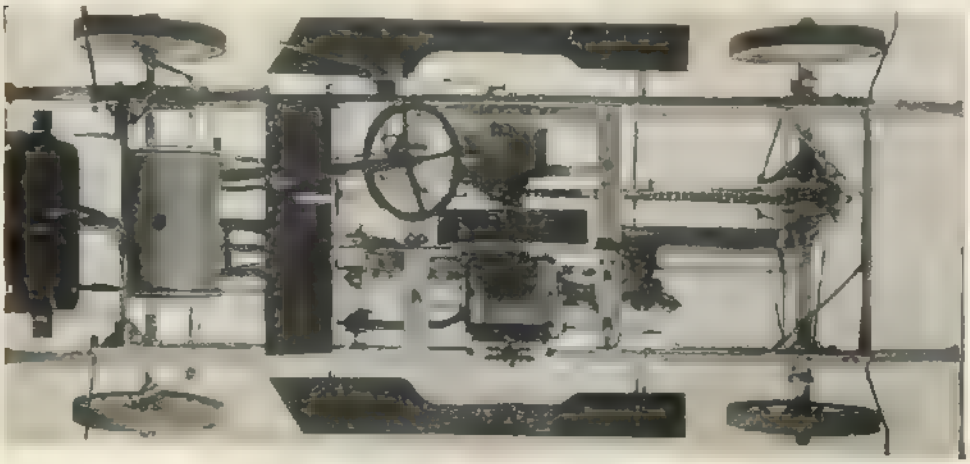
Valves are forged, 1¾ ins. diameter; exhaust valves mechanically operated; inlet valves automatic. The inlet valve cages are secured by a strap, the feet of which register with grooves on valve chamber, which makes the valves easily removed. All joints are a ground fit, and no packing is used. The valve chamber, which is cast integral with the cylinder, is full water jacketed and arranged in a horizontal position immediately below the cylinder, inlet valve being immediately opposite, just enough room between for the proper operation of the valves. All incoming gases pass immediately over the

face of exhaust valve. Valve operation is by cams on two to one shaft, which is driven by spur gears housed in aluminum case. Cams are steel and case hardened, and are both keyed and pinned to shaft. The valve operating plunger is carried in aluminum housing, bronze bushed, and is secured from turning by slot through which a 5-16 in hardened pin passes. This plunger carries a 1 in. roller ½ in. wide and a forging on the outside end offset sufficiently to properly engage valve stem.

The circulating pump is gear driven from half time shaft, but has a double universal joint between driving gear and pump, which insures perfect alignment and at the same time lessens packing troubles.

face and 6 pitch hardened steel and run in oil, and are enclosed in aluminum case. All bearings bronze bushed. The clutch is of the contracting band type. All gear shifts are on one lever, and no gear can be shifted unless clutch is disengaged. The interlocking mechanism also prevents the clutch being engaged unless the gear shifting lever is on the correct notch. The clutch is operated by side lever, and slight movement forward of this lever after clutch is disengaged applies hand brake on transmission gear.

The steering gear is of the rack and pinion type; both pinion and rack are steel, 1 in. square, 8 pitch, housed in light aluminum casing; both the throttle and spark advance are arranged underneath the wheel and to



The Logan Model H Chassis, Plan View

The commutator has brass segment set in fibre disc, upon which two hardened steel brushes bear, held in contact with coil springs.

The carburetor is of the usual float feed throttle compensating type, and is very efficient, this car making about 16 miles to the gallon of gasoline

Ignition by jump spark, a double cylinder, dashboard vibrating coil, and double set of dry batteries being employed; the battery box is arranged under front seat.

Lubrication is by Essex exhaust pressure oiler, with oil leads to all bearings on engine and transmission. The lubricator is arranged immediately above the engine crank case.

TRANSMISSION

The transmission gear is a sliding set furnishing two forwards and one reverse drive, with direct on high speed, in which instance no gears are engaged. All gears are 1 in. the right, one immediately below the other, and are held in place by ratchet tooled quadrant.

The brakes are double acting Raymond on both side differential drum, operated by foot pedal, with ratchet and a service brake on transmission, which is operated by a slight forward movement of the clutch shifting lever when clutch is disengaged.

The rear axle is Wecton-Mott manufacture, fitted with Hyatt roller bearings, and spur gear differential and Raymond double acting brakes. The front axle is tubular.

The radiator is of the parallel tube type, with fins crosswise. The circulation of water is from bottom of radiator to pump, from pump to bottom of engine cylinders, from top of cylinders to tank. The radiator is mounted in front and the cooling system seems very efficient, and a hard run over the hills in the vicinity of Chillicothe did not start the water boiling

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The Cleveland Hardware Co., Cleveland, Ohio, are manufacturing automobile irons for several of the larger car makers, and expect to increase their facilities during 1906, so as to be in a position to cater to the trade generally, when they will put out a line of stock patterns

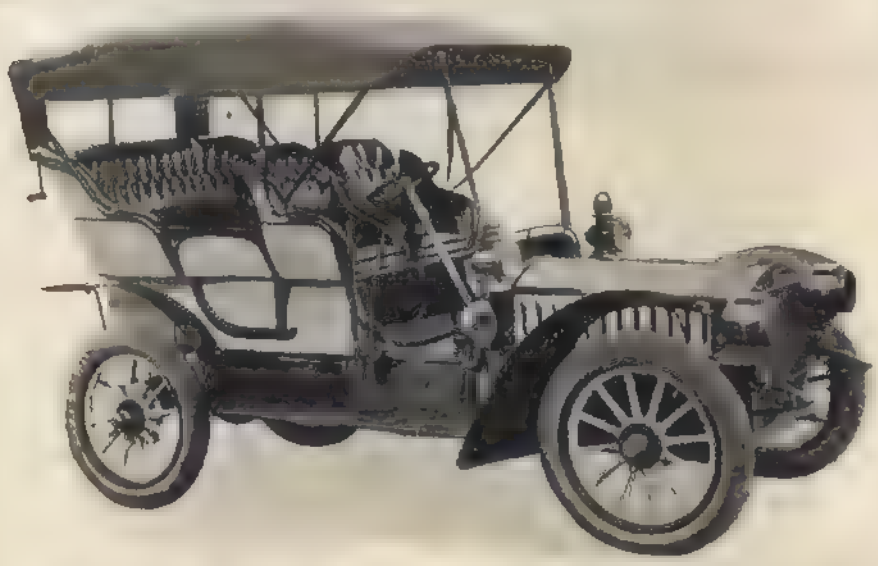
The Duff Manufacturing Company, Pittsburg, Pa., was awarded the gold medal, highest award, on Barrett Jacks at the Lewis & Clark Exposition, Portland, Ore. The Barrett Jacks were also awarded the gold medal at the Louisiana Purchase Exposition, St. Louis, 1904.

The Austin 1906 Touring Car

HUGH DOLNAR.

The Austin Automobile Company, Grand Rapids, Michigan, U. S. A., had its first car on the road in December, 1902, and developed a large number of gasoline power and vapor finish, to the season of 1905, when gave the greatest possible satisfaction to its purchasers. The Austin, 1905 was quite fully described in our issues, 1905, but later, as it will be of much interest to the engineer and to the trade at large, to compare the 1905 Austin car in strong with original features of very point, with the following illustrated story of the Austin 1906 touring car, here told in print for the first time, because the 1906 Austin while retaining the high-power motor and the extremely substantial rear axle construction of the 1905 model

roller gudgeon system can be worked alone while the other is wholly removed from the car, and the new Austin spring controllers, which do not resist spring closing but hard spring recovery to the precise degree best adapted to the car and, and, this Austin control being delicately slow adjusted. The Austin spring controller gives a control new and most superior effect, and is being applied by the Austin Company to other makes of cars at $100.00 for the set of four. In addition the $4,000.00 price includes a complete set of tools, thus making the car as well equipped for extended touring on all kinds of roads as any vehicle yet offered.



The Austin 1906 touring car, wheel base 109 ins., gauge 56 ins., wheels 36 ins., tires 4½ ins., motor, 4 cylinders, 4 cycle, water-cooled, 5½ ins. bore x 5 ins. stroke, nominal 50 H. P., sliding gear, selective type, four speeds forward and reverse. Weight 2800 lb., price $4,000.00, with extra set of two separate tonneau seats.

is not, however, entirely new explanations are adopted, making the "Austin" one of the most original of 1906 American motor car constructions. The specifications of the Austin 1906 touring car are: Wheel base 109 ins., gauge 56 ins., wheels 36 ins., tires 4½ ins., motor, 4 cylinders, 4 cycle, water cooled, 5½ ins. bore by 5 ins. stroke, nominal 50 H. P. sliding gear selective type, four speeds forward and reverse. Weight 2800 lbs., price $4,000.00, with extra set of two separate tonneau seats. The motor has cylinders cast en bloc, with valves all on one side, operated by a single camshaft. The valves are all interchangeable, and the cylinders are water jacketed. The ignition system is of the dual type, two complete and wholly separate ignition systems being employed, one a high tension magneto, and the other a dry cell storage battery with coil and vibrator, separate spark plugs for each system and separate wiring, so that either can be used at once.

NOTABLE FEATURES

The only change from the 1905 Austin sliding gear is to make the low gear and reverse same rate, the original gear being the lower on the reverse and a change in the means for handling the gears, which eliminates all side movements of the levers, the lever having 3 vertical positions, and an added reversing lever rocking crosswise of the car. This does away with the H slot and avoids the possibility of wrong gear selection, as the lever naturally returns to neutral as soon as any gear disengagement is effected as is shown later in detail. The result obtained is the same as with the H slot and sidewise moved lever but the Austin change permits the use of a lever of better proportion and the whole assemblage of gear operation is very simple and reliable.

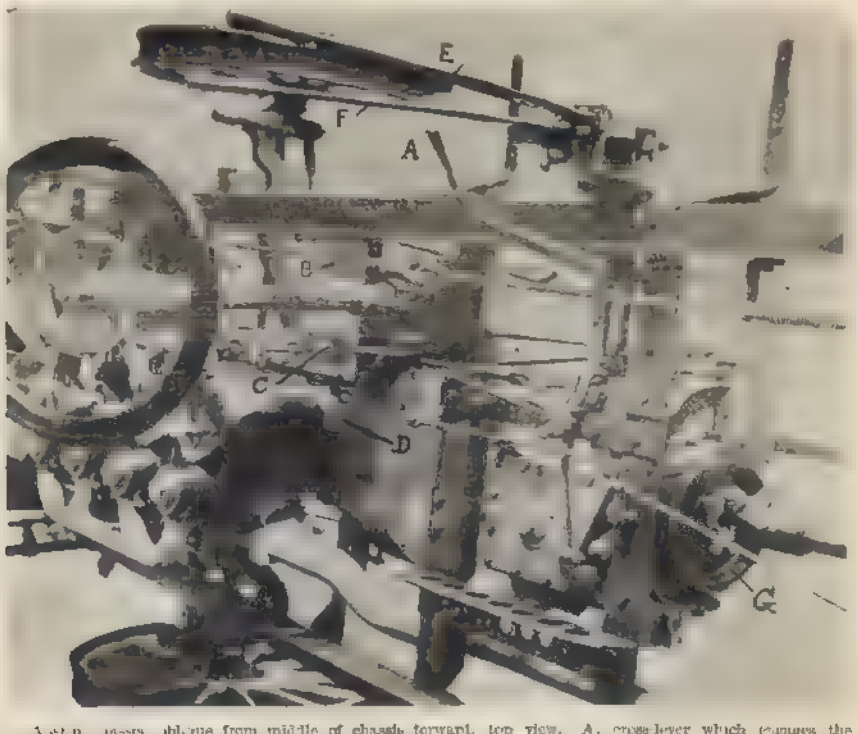
The Austin clutch engagement is by the friction of four radial surfaces, one on the

fly wheel, one on each side of the driven member, and one on the sliding member, the sliding member being normally spring pressed to pinch the driven member between the sliding member and the fly wheel. Multiple disk clutch engagement is commonly effected by a central coiled spring pressing the middle of a disk which bears against the true clutch disks or plates. This arrangement makes the spring pressure the more effective at the middle, and the less effective at the outer edges of the disks; also, the more disks there are in a multiple disk clutch the more engagement effect is gained by a given spring pressure, and, again, the greater the number of disks used the more oil friction there is to turn the driven clutch member assembl.ge when the clutch is disengaged. The smallest number of radial faces that can be forced into frictional engagement is two, one on the driving member and one on the driven member, and as many as 21 friction disks are sometimes placed in a clutch of this form. Austin uses three members, one stationary and two moving axially, and introduces radial levers fulcrumed in an internal groove in the fly-wheel rim and having their inner ends pressed into normal clutch engagement position by a central spring. This brings the spring pressure multiplied by the leverage, to the outer circumference of the engaging surfaces, where it is most effective, and also makes disengagement more complete than with more disks, as there is less surface to be effected by lubrication drag.

The front axle is an I-section, with forked ends. The rear axle sleeve is two steel castings, faced and bolted together at the middle, with no hand hole or capped opening to give access to the bevel casing interior. The rear wheels are keyed directly to the rear axles.

NO STRUTS.

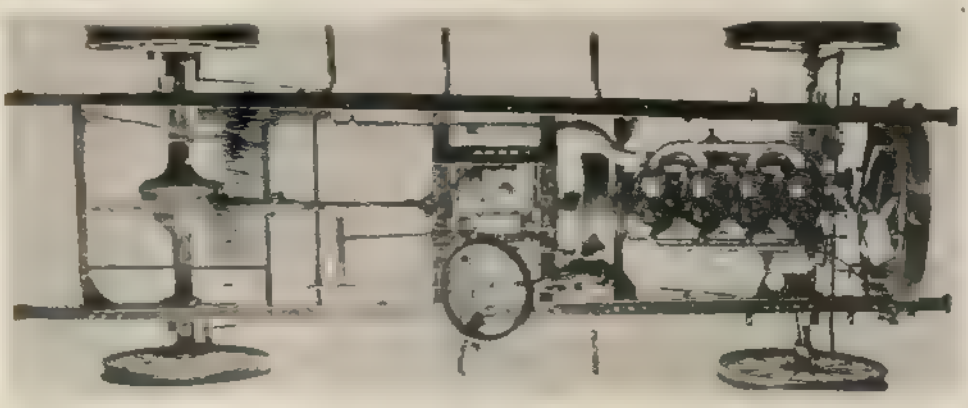
No struts are used, and no torsion rod is



Austin transmission, oblique from middle of chassis forward, top view. A, cross-lever which engages the reverse. The whole scheme of the interlocking linkage which enables the A stick control convenient and certain in action, depends on the cross-wise movement of this lever. A B, is the rear-hub brake-service applying pedal, and has no other function than to apply the ordinary rear hub brake. C, clutch disengaging pedal. If pushed forward C first releases the clutch, after the clutch is disengaged [illegible] C, continued forward movement of C unlocks the [illegible] F and A being both free to move and made ready to exercise their initial function. With F in forward position F [illegible] moved [illegible] any forward speed gears, but if so moved [illegible] of F and A [illegible] the reverse, but so moving A locks [illegible] the [illegible] of the sides, the precise notation of which cannot be made clear without section [illegible] F [illegible] steps and releases and locations are correctly specified above. The speed change [illegible] imported Hess-Bright [illegible] shaft, always engaged, direct on high speed 4 speeds forward and a reverse. G emergency brake. D, muffler cut out.

placed, the ¾ elliptic springs performing all the duties of these difficult installations which Austin holds as worse than superfluous, as it is impossible to place the springs, the struts and the torsion resistance between the rear axle casing and the chassis frame so that no member of this complicated aggregation will not injuriously affect the performance of one or more of the others. The extreme top members of the ¾ elliptics are of course fixed to the chassis frame, and the front ends of the lower spring members are jointed forward and are shackled at the rear ends. This leaves everything perfectly

free, and makes the springs alone transmit all propulsion effects to the chassis frame, which is precisely the function taken by the struts. The elimination of the torsion resistance member of course throws this work also on the rear springs, and also places a spring cushion between the teeth of the bevel pinion and gear. That is to say, the springs permit a slight rotation of the bevel gear against the springs before the full driving effect begins to turn the wheels on the road. No Austin car has ever broken a rear spring, which is convincing proof that Austin is not mistaken in his reasoning in this matter of struts and torsion resistance. It must be noted in this connection that the Austin is a large and high powered car, and should therefore need struts and a special torsion resisting member as much as any car made.



Chassis of 1906 Austin car. The cross-lever which engages the reverse is hidden by the steering wheel in this picture. The bend of the rear cross member fixed to the crank box is clearly shown here. The motor is supported by two forged steel cross members, reaching across the under side of the chassis frame. The change gear box is fixed directly to two short long-bolts. laced piece of angle steel, carried on two chassis frame cross-girts. The Austin car has no sub-frame, and the grey-iron crank box is kept as narrow as will permit crank revolution inside.

Hence the fact that, as before stated, no Austin car has ever broken a rear spring shows that the omitted struts and torsion resisting member really serve no useful purpose whatever, and that the function of the strut and torsion arm do not injuriously add to the work of the rear spring.

CHASSIS FRAME

In the chassis frame Austin has made a notable departure from common practice in adopting the most obvious method of making the rear of the frame wider than the front. The chassis frame is better with different widths, and the common practice has been to make this change in width by placing OG bends in the frame sides. A moment's consideration shows that this crook in a frame side transforms it from a girder into a cranked member, leading to the necessity of a strongly reinforced and costly construction to avoid the numerous breakages of the OG pressed steel frame side.

Austin simply makes his angle steel frame sides straight, drawing them in at the front. There is no loss whatever in departing from the parallelogram chassis frame, and there are many gains secured by Austin's expedient, which is so very obvious as to make former practice seem very raw indeed. The chassis frame side remains straight, and is of course merely a plain girder, with all the load resistance of its weight and material distribution unimpaired, although the frame has the desired difference in the widths of its ends.

The body sills are given a spread at the rear to correspond to that of the chassis frame, and the whole problem of the two-width chassis frame is solved in the simplest and best manner shown in any car.

The 1906 Austin front axle will be changed to an H-section integral steel forging, with forked ends. The stub axles are steel forgings, and the front wheels are on Timken bearings.

STEERING

This is by a double thread screw on the lower end of the steering shaft, thread 1 in. pitch. This screw length is a little more than the length of the nut which it engages, added to the travel of the nut, thus permitting the placing of ball bearings at each end of the thread to take the steering screw thrust, one of the ball-cups having a lengthwise adjustment to take up end-motion of the screw. The screw nut is integral with a rack which engages a spur-gear sector, integral with its journals. The steering shaft screw drives the nut and rack, which in turn drive the spur-gear sector, integral with the globe-end steering arm. A spur pinion and sector have much more bearing area than a worm and tangent screw, and the ball bearings at each end of the screw not only make the steering gear work easily, but by the screw threaded ball cup, pinching screw retained, take all endwise lost motion out of the steering shaft. The sector journal boxes are eccentric, are turned to keep the rack and sector in close mesh, and the whole steering action is in a dust-proof casing.

THE REAR AXLES.

This is two steel casting sleeves joined by boting the flanges of the enlarged inner ends together to form the gear casing. This is a very strong form of rear axle casing, ribbed against all stresses, and the whole structure can be easily and quickly taken out and separated at the middle to obtain access to the bevel gear and pinion. This axle casing has

been used in the Austin cars for three years, has never broken nor given the slightest trouble of any kind, and will not be changed at all in the 1906 Austin cars

TORSION RESISTANCE

Driving the bevel-gear by its pinion tends to turn the rear axle, and this turning impulse is resisted by some form of torsion resistance, either rigid or slightly flexible, usually a separate member known as the torsion rod or arm. The rear springs resist rear-axle casing rotation, and resist it in the most suitable manner, not rigidly, but with sufficient elasticity to avoid shock, and at the same time hold the rear axle casing as nearly in one position with respect to the chassis frame as is desirable. It is therefore plain that some weight of spring will be strong enough to not only perform the duties of both springs and struts, but may also afford the needful torsion resistance.

This is done in the Austin cars without adding enough metal to the springs to make them too stiff for easy riding. The Austin springs perform all the duties of springs, struts and torsion arm, and no Austin rear spring has ever broken, and the Austin cars are very easy riding.

Austin rear axle, wheel, brake and rear spring. The axle casing and gear housing are a two-piece steel casting, bolted together in the middle. The ¾ elliptic spring fixing to the chassis frame is here clearly shown. Also the application of the brake drum to the wheel spokes. All spring eye pins are hardened and work in hardened steel bushes, and the springs have retaining bands applied as shown which is important

THE SPRINGS.

These are all ¾ elliptics all 2 in. wide, 45 in. long in front and 49 in. long in the rear, as they stand in the car. The front and rear springs are both pivoted forward and linked behind, and the rear springs have scroll heads. The Austin bevel-gear driven cars have all had springs of the form and three-fold functions described and have been free from troubles of any description. Both front and rear springs are perched in the middle of their lengths; the springs all have 7 leaves.

The chassis frame is of angle steel, 4 in x 3 in. x 5-16 in., wide member vertical inside. The chassis frame is 39 in. wide in the rear and 36 in. wide in front, and the chassis frame sides are straight, thus giving them their full normal strength when placed as girders, instead of greatly reducing their load carrying capacity by forming OG curves in their sides, as is commonly done where the chassis frame is of different widths front and rear. With the chassis frame as described there is a wide flat under surface to take the brackets, pedestals and cross-members, and the body sills can be easily made straight, and placed the closer together in front, to fit the chassis frame. This form of chassis frame avoids all the reinforcing of the sides to recover the strength lost by the OG curve, and is very cheaply produced, and perfectly suitable in every way when done.

THE MOTOR

The motor is unchanged from the 1905 model, except a slight increase of compression. The intake valves are automatic, and triple, 3 valves, covering 3 ports 7-8 dia., being fitted to the separate intake cage of each cylinder. The exhaust valves are mechanically operated, of course, the ports being 2 in. diameter

The valve cams have riding rollers on the ends of long levers, pivotted to the inside of the crank box, opposite the cam-shaft, and the valve lifters rest on the roller rocker-arms, and so have a direct lift with no side movement

The motor base is made only wide enough to take the cranks and rod-ends, is of grey iron, with aluminum hand hole covers. The rods are full marine type. The pistons have 4 rings, ⅝ wide, two close to the top, one just above the pin, and the last one near the bottom of the piston. The piston pins are 1⅜ dia., hollow, steel, ground, and fixed to the rod end and turn in the pistons, which obtains the better pin lubrication.

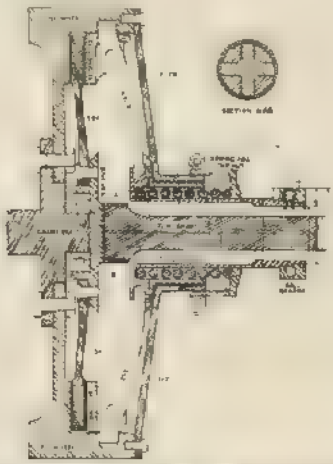
To support the motor on the chassis frame, the crank box ends are finished and steel forged bar with wide ends for fixing under the chassis frame sides, is fixed to each end of the crank box.

This construction avoids the inconvenience of handling due to the common form of crank box with integral lugs reaching across the chassis frame. The widened ends of the steel forging cross bars take two bolts through the bottom member of the chassis frame, and one hook bolt, hooked over the wide inside chassis frame member. The grey iron motor base is made only wide enough to take the cranks and rods and house them, the forged steel lugs being fixed to the ends of this narrow grey iron engine base by 5 studs each, tapped into the base-ends, passed through holes in the forged lugs, and rivetted. This gives a small base, handy in finishing, and supports the heavy motor on steel forgings, not liable to break, reaching across the full width of the chassis frame.

THE CLUTCH.

This is a single aluminum disk, fixed to a flanged hub carried on a ball bearing mounted on the rear end of the crank-shaft, outside of the integral crank shaft flange to which the fly wheel is bolted, the flange hub, steel, has four clutch jaws on its rear face, en-

gaging similar jaws integral with the short clutch shaft, alike at both ends, and engaging the change gear line shaft, see illustration of clutch. The single friction disk is pinched between the rear fly wheel face and a sliding ring, pressed by the clutch spring through four levers, so as to bring the friction to the outer part of the disk, where it is most effective. This clutch is normally spring engaged, and is disengaged by a single pedal which also



Austin clutch. The [illegible] ins. The crank-shaft [illegible] tension to rear, on which a ball bearing is [illegible] which supports the steel disk-hub. This disk [illegible] solid clutch jaws cut in the right side which engage similar clutch jaws cut in the left end of the crank-shaft. Each [illegible] Austin has the same solid clutch jaws at its right end not shown to engage the change gear line shaft. The clutch engagements are surrounded by driven retaining rings. The clutches are milled to close fits, 4-jaws, and are costly. With retaining rings as shown, it is probable that case clutch jaw, straight across each end of the clutch shaft, at right angles for the two ends, would serve every purpose as well as the costly 4-jaw construction shown in the section. The fly-wheel is bolted to the crank-shaft and has its rim flange [illegible] to the inner [illegible] grooved to take the 4 [illegible] is [illegible] ced on the side [illegible] ck face. The disk is of aluminum, and is fixed [illegible] hub which [illegible] [illegible] splined [illegible] grooved sliding ring is fitted [illegible] inside the fly-wheel rim and [illegible] a friction surface to engage the disk [illegible] pring ring [illegible] pairs of [illegible] 90 degrees [illegible] take levers [illegible] crumed in [illegible] ing on pins in the sliding-ring lugs. The inner lever ends are rounded to work in a ring groove [illegible] the spring-sleeve, and so that the spring-effect is multiplied about 4 to 1 in pressure on the sliding ring. The office of the applied short sleeve inside the cover hub [illegible] to be that of a guide only, and it is not clear that this member might not well have been integral with the spring sleeve. The aluminum cover, bolted to [illegible] fly-wheel rim, has a threaded hub to take the spring-sleeve end spring adjusting capped nut, adjustment pinch-screw retained. The screw-adjusted 3-point ball bearing which takes the clutch-fork thrust is mounted on the right end of the spring sleeve. This clutch must be lubricated, as the engaging surfaces are metal to metal. The spring shown is of ⅝ round rod; as the spring thrust is multiplied by the levers, and the friction disk is no less than 16 ins. diameter, probably a spring wound of ¾ in. square rod would give abundant driving friction. Austin does not favor leather facing of clutch engaging faces, but in view of recent practice it would seem that leather faces applied to each side of the disk would enable this simple and powerful clutch to do its work without lubrication.

applies the rear hubs ordinary breaks, and by the outside lever, which first disengages the clutch and then applies the emergency brake band to a brake drum 9 in. dia. x 3 in. face, fixed to the forward member of the forward universal joint.

BRAKES.

The steel casting ordinary brake-drums are applied to the wheel-spokes, see illustration. The steel internal shoes are fiber faced, and cam-rocker applied by the clutch pedal action.

The emergency brake is worked by the outside hand lever, which first disengages the clutch and then applies the shoes to the emergency brake drum. This is a very strong brake action, and is applied only when the car must be stopped as quickly as possible.

THE REVERSE.

The reversing pinion is dropped into engagement from above, by a mechanism which locks the pinion in engagement, and prevents any drawing in or pushing out of the reversing pinion in work.

Austin control. The outside lever applies an exterior hinged leather-lined steel shoe to the emergency brake drum fixed to the universal joint member, after disengaging the clutch. The inner lever works the gear shafts, except reversing and interlocks with the reversing. This lever works by a novel H slot modification, always in one plane vertically, but in three horizontal planes. In its bottom position, pushing this lever forward gives the 1st speed, and moving to rear gives the 2d speed. In high position this lever gives the 3d speed forward, and the 4th or high speed, direct drive. After each disengagement this gear change lever normally returns, automatically, to mid position, neutral, lever vertical and in mid horizontal position, where it is spring retained vertically both up and down and is also locked sidewise and cannot move front or rear without first lifting up or pushing down, and is ready to instantly make any gear change with one movement of the driver's hand, which either presses the lever down or lifts it up. No movement of the gear change lever can be made until after the clutch is disengaged.

SPEED CHANGING.

Silent and ready change gear engagement by the inexperienced driver depends on (a) the light weight of the driven assemblage made up of the driven clutch members and the propeller shaft, and (b) on the ease with which this assemblage turns in its bearings.

Perfect clutch disengagement is understood,

as any drag of the clutch makes a noisy and damaging gear engagement not only possible, but extremely probable.

To meet (b) Austin mounts the whole clutch driven propelling assemblage on Hess-Bright ball-bearings, and to meet (a) everything driven by the clutch up to the change gear is made as light as possible.

These weight reductions and the little friction of the Hess-Bright ball-bearings, combined with the ideal interlocking of the brake and gear-shift linkage, make it easy for an inexperienced driver to effect any gear engagement without rubbing the gear teeth or making any noise.

It is well known that the disk clutch should have as few disks as possible and do its work, and that clutch oiling is undesirable, both because of more certain complete disengagement. Austin transfers the multiplied spring thrust to the outer portion of the friction disk by introducing the four levers, and so makes a single disk of large diameter take the work of his powerful motor easily, and if a single disk clutch could be made efficient without oiling it would be the best form. Up to this time no clutch, metal to metal, has been worked dry, and no single disk leather-faced clutch has been tried, so far as the writer knows. It seems as if this powerful, large diameter Austin construction might be run dry if leather-faced, single disk as here shown.

The clutch is at present the most important single detail of motor driving transmission, and this Austin construction will receive close attention.

RADIATION

Austin adheres to water jacketing before transferring the cylinder heat to the atmosphere. The pump is an eccentric revolving in a cylindrical casing which the eccentric thickness just fills, while the edge of the eccentric touches the cylinder wall and is ridden by a swinging abutment, all as often seen in rotary steam engine designs. This is a simple and effective pump for light service.

All users of automobiles are well aware of the faults of plain body springs, either full or half elliptics. On good pavement it is an easy matter to make a car easy riding. On a rough road it is extremely difficult to find springs soft and quick enough to work well where the roads are fairly smooth, and at the same time heavy enough to avoid spring closing when the wheels drop into a deep road depression. Again, if the springs are made wide and heavy, so as not to close under heavy shock, and are given great length so as to have elasticity enough to compensate promptly on fairly smooth roads, then these powerful and quick springs toss the car body in recovery, and make it difficult for passengers to retain their seats at high speed on a rough road. To meet these difficulties spring checks are fitted, in the form of friction producing elements linked to the car body and to the axle so as to turn on each other as the body and axle come together or go away from each other. These friction checks do avoid the tossing of the car-body, but they also rob the springs of delicacy of action, and make the springs slow in closing as well as in recovery, and so, while keeping the passenger to stay in the car, they also make the car ride hard.

Austin's spring check is a novel arrangement, not here described because of patent matters, which strongly retards spring recovery, but does not hamper spring closing to an injurious extent, and which does not wear rapidly. This leaves the spring with all its normal sensitiveness in closing, and yet effectually resists the tossing of the car-body by rapid spring recovery. The Austin spring check is a very peculiar and highly ingenious affair, identically the same parts being made to produce varied effects by simply changing relative positions, so that the same spring check can be made to resist spring action either up or down, leaving the complementary action unchanged, or can be placed so as to slow the spring action in closing and recovery equally.

ON THE ROAD

A short run was made, Walter Austin driving, to show the action of the speed change interlocking linkage and that of the spring check.

The vertically moved speed change lever, the cross-movement reversing lever and the spring check all showed ideal performance when working on the road. Owing to the perfectly free clutch release and lightness of the clutch disk the sliding gear engagement was made with no noise, the springs were free to close and so carried the car easily, while the spring check wholly prevented body tossing.

In this run Austin put the car wheels into all the ruts and over all the bumps available, without making the car at all uncomfortable for its passengers, the spring checks retarding the spring recovery admirably, and at the same time not at all hindering the springs from delicate closing over small road-surface variations.

The Austin car has abundant power and speed, and with the Austin spring checks is extremely easy riding. The spring checks stop side-sway as well as body tossing, and add greatly to the comfort of the passengers both ways, and appeared to the writer to meet the requirements of large cars driven rapidly on rough roads, more perfectly and completely than any thing of the kind before observed.

The Lee Manufacturing Co., Port Huron, Mich., are making on contract carburetors, transmissions, steering gears and other special parts used by automobile manufacturers. They are also manufacturers of pneumatic tools and a full line of brass goods.

The transcontinental automobile exposition trip of the Winton Motor Carriage Co. ended in Stockton, Cal., November 17. The expedition traveled 55 days and through 17 States and the Dominion of Canada exhibiting their new model K in 25 different cities from coast to coast

Columbia 1906 Cars

W. E. FOLLAMBE

The Electric Vehicle Co., Hartford, Conn., one of the pioneers of this country in automobile building, whose enormous plant at Hartford, Conn., is now being enlarged for the fifth time, offer the following gasoline models for 1906: Mark XLIV-2, which is a perpetuation of this year's two-cylinder opposed car. Mark XLVI, an entirely new model four-cylinder light touring car, and Mark XLVII, the large four-cylinder touring car of this year with 1906 changes.

The specifications and dimensions are as follows: Mark XLIV-2, two-cylinder horizontal opposed engine transversely set under hood at the front; cylinders 5 in. bore by 4½ in. stroke; 150 to 1500 rev. per minute, normal 900; 18 to 19 actual H. P. by brake test, shaft drive with two universal joints to bevel gears on rear live axle; valves horizontal, interchangeable and mechanically operated, placed side by side; water jackets and heads cast integral with cylinders; water cooled by positively driven gear pump and Whitlock cellular cooler and fan; leather faced cone flywheel clutch; jump spark by 25 dry cells arranged in multiple in five groups of five cells each; three speed sliding gear transmission, direct on high; wheel steer, rack and [illegible] type; pressed steel frame, wood body, individual front seats, side entrance tonneau, semi-elliptic springs front and ¾ platform at rear, artillery wood wheels, 30x3½ tires, conical rollers on front wheels, parallel rollers on rear wheels, passenger capacity, four; gasoline, 10 gallons, equal to 125 miles of ordinary road; foot and hand brake on rear wheel on separate drums for better cooling; wheel base, 89½ in.; tread, 55 in.; weight, 1800 lbs. As this car was fully described in these pages last year no detailed description will now be given.

The large four cylinder car, Mark XLVII has the following specifications and dimensions: Motor, four-cylinder vertical cast in pairs, 5 in. x 5 in., 800 rev. per minute, normal; 40-45 H. P., showing often 55 in brake test; water cooled by gear pump; Whitlock cellular cooler and fan; jackets and heads cast integral with cylinders; all valves mechanically operated on same side of engine, admission valves directly over exhaust valves; ignition jump spark by Duplex storage battery of three cells each, four vibrating coils on dash; sliding gear transmission four speed and reverse, double side chain drive to solid rear axle; hand steering wheel to irreversible worm and wheel; artillery wheels with steel hubs; tires 36 in. x 4 in. front, 36 in. x 4½ in. rear; wheel base 108 in, tread 55; individual front seats, side entrance tonneau, seats five, carries 24 gallons gasoline, equivalent to about 225 miles of ordinary road, weight 3000 lbs.

CHANGES IN MARK XLVII FOR 1906.

This Columbia car was brought out originally in 1902 in nearly its present form. In 1903 the inlet valves were changed from automatic to mechanical. From that date to the present, practically no changes of importance have been made in the engine. For 1906 a number of minor changes have been made, the most important being the new brakes, method of making the engine shaft and front axle. The control arrangements have been left exactly as in 1905.

Two sets of brakes as before are used, but both are of a new model expanding band type. On each end of the sprocket shaft are cast steel drums, against which expanding shoes of steel with cast iron faces, act. The cast iron faces are riveted on and the shoes are expanded by a toggle joint of small motion, operated by the foot lever, which makes an extremely powerful brake. This is encased in a dust-proof cover. The rear wheel brake is of the same type, acting on drums on the wheel hubs. The toggle joint is moved by the pull of the ratchet lever located on the side of the car frame, instead of the push rods used previously. This brake lever and the shifting gear lever supports are fastened to the frame only and not in any way to the body. The gear shift lever has been changed to the selective system, the thumb button on top requires pressing only when going into the reverse and prevents throwing into the reverse by mistake. The engine shaft, formerly a steel drop forging, is now cut from a solid piece of chrome nickel steel weighing about 200 lbs. The accompanying photo shows three steps in the process, which is necessarily, slow and expensive, but produces the best crank shaft possible to be made. This new product of the steel industry has an elastic limit in the neighborhood of 135,000 lbs., and a tensile strength of 235,000 lbs. After turning, this shaft is oil treated, in which process the Electric Vehicle Co. have attained great success. It is then subjected to a grinding process to an exact bearing surface. This special steel is used in all the vital places, such as gears, both of transmission and differential, the jack shaft, the square and lay shaft of the transmission, steering knuckles, wheel pivots, engine shaft and the front axles. Up to the present time the front axles were made of two drop forgings hand welded at the center. The entire front axle of I section, spring supports and ends is now made in one drop forging without welds. This is certainly a great step forward in the art of automobile building and one which will be appreciated by all those who use large heavy cars. This piece of forging is made possible by the fact that their drop forge shop is one of the largest and best equipped of any automobile manufacturer in this country.

The familiar shaped radiator has been changed to a plain curved Whitlock. The flat dash has been superseded by a curved dash made entirely of wood. All the mechanism is attached to the chassis and nothing to the body, allowing of its rapid removal. The

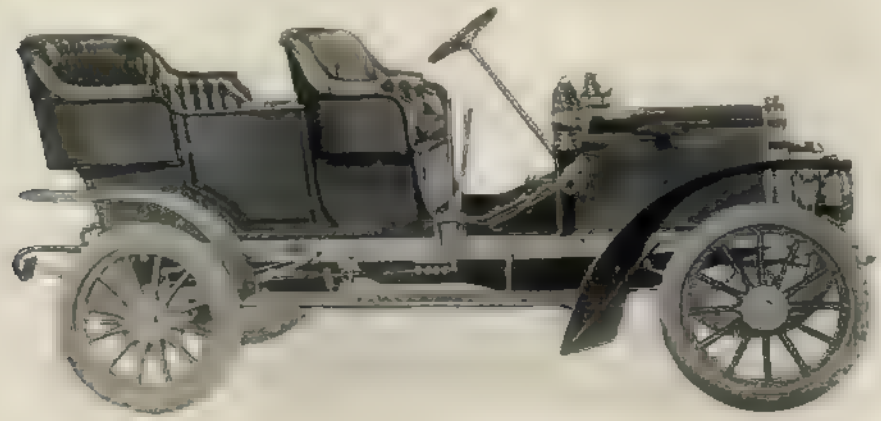
wheels have been increased to 36 in. diameter and Timken roller bearings have replaced the plain bearings. A flexible connection is now placed between the clutch and transmission. The new Whitney noiseless roller chain of 1 in pitch is used for driving and the rear sprocket is set away from the wheel so that the chain clears the tire by 2 inches, allowing any kind of tire grip to be used without interfering with the chain.

A Lacoste timer has taken the place of the previous one of their own make.

Hess-Bright bearings are used on the clutch and governor. Instead of the multiple feed grease cup, 8 individual cups are arranged four on each side in a horizontal position, their handles just showing from under the edge of the frame below the foot boards. These cups have large ½ in. pipes leading to the principal bearings of the transmission and jack shaft. The strips at the edge of the floor boards have been changed from iron forgings to ornamental brass, while the strip of half-round brass holding the upholstery at the top of the seats has been covered with [illegible] water jacket, cast integral with cylin- [illegible] passages, cast integral with each [illegible] cylinders, making simple piping ar- [illegible] cylinder heads, cast integral with [illegible] valves, all mechanically operated on same side of engine from one cam shaft with vertical lift; leather faced cone clutch in fly-wheel.

Muffler: One cylinder with nest of small tubes, giving very silent exhaust and low back pressure; carburetor, float feed type of new design with automatic auxiliary air valve, giving wide variation in speed with uniform mixture; ignition, make and break spark with low tension magneto, controlled by hand adjustment on steering wheel; throttle control, load governor; pedal, accelerator; hand adjustment on steering wheel.

Transmission: Sliding gears, direct drive on high gear; three speeds ahead and one reverse; bevel gear drive, live rear axle, with [illegible] universal jointed propeller shaft; conical roller bearings in front hubs and rear axle. Engine crank shaft and transmission bearings babbitt lined.



New 4-cylinder 40-24 H. P. Columbia Mark XLVI light touring car; cylinders 4x4½, weight, 2250 lbs.; wheel base, 98 ins.; tires 32x3½ front, 32x4 rear. Price $5000.

leather, a change which will undoubtedly be appreciated by chauffeurs, as this brass strip was very hard to polish and not soil the leather.

THE NEW MODEL MARK XLVI.

The new four-cylinder touring car has the following specifications and dimensions:

Body has individual front seats; side entrance tonneau, provided with drawers under front seat for tools, etc.; weight 2250 lbs.; frame, pressed steel narrowed in front, giving greater steering freedom; springs, half-elliptic front and rear; axles, front axle drop forged nickel steel in I section with steering knuckles complete and no welds; rear axle of tubular construction with no transverse strains on live axles; wheels, wood, artillery type; steel hubs; tires, 32x3½ in. front, 32x4 in. rear; Whitlock cellular radiator with flywheel fan and positively driven centrifugal pump. Price, $5000.

Engine: Four vertical cylinders, cast in pairs; 4 in. bore by 4½ in. stroke; 150 to 1800 revolutions, 1000 revolutions normal; 20 to 24

Gasoline capacity: Twelve gallon tank under frame at rear end with pressure feed from exhaust; average mileage with full tank under ordinary road condition, 150 miles.

Both brakes act on rear hubs. Foot brake, contracting shoe type and emergency brake of internal expanding shoe type. Engine lubricated by geared pump forcing continuously a large volume of oil from a reservoir to all engine bearings and pistons. Crank pins splashed oiled. Individual hand grease cups on transmission; self-oiling wheel hubs. All gears run in oil or grease; wheel base 98 in.; tread, 56 in.; clearance, 9 11 16 in.

The general appearance is clean cut and pleasing and the car bids fair to be a strong rival of its big brother in popular favor. The upholstering is luxurious, the side door entrance and tonneau commodious and comfortable. No mechanism of any kind is attached to the body, which can be quickly removed. Small convenient cupboards and drawers are fitted under the front seats, this space being free for carrying, as the 12-gallon

gasoline tank is located under the frame at the rear and fed to the carburetor by pressure from the engine exhaust. The writer predicts the growing popularity of this arrangement, as it insures a constant feed to the carburetor up hill or down; the tank is occupying valueless space and leaves free for baggage much valuable space. In this position it is easily removed and accessible and can be filled without lifting the seat cushion and disturbing the occupants. Furthermore, if the tank should leak it is not dripping gasoline directly into a battery box or on to a hot exhaust pipe. The entire car is built of the same material and with the same care that has made the large touring car so popular.

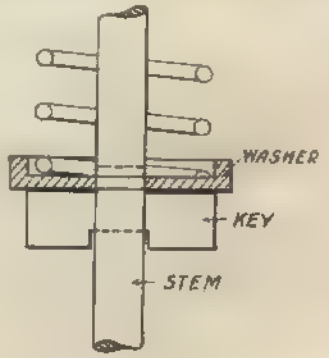
THE ENGINE

The 4-cylinder engine, 4-in. bore by 4¼-in. stroke is rated at 29.2 H. P. but is capable at speeds easily attainable on the road of developing 29 H. P. The cylinders are cast in pairs for compactness with integral jackets and heads. The pistons are cast of the best

Stages in the development of the Columbia 4-cylinder engine crank shaft from solid piece of chrome nickel steel

gray iron turned straight up to the ring groove and then tapered to the head, which is 6 to 7-1000 in. smaller than the body. The finishing is by grinding. The cylinder bore is also finished by grinding. Three diagonally cut, eccentric piston rings of special cast iron, closed after cutting and ground to an exact fit to the cylinder and on the sides are used above the wrist pin. The connecting rod is an H section steel drop forging of great strength babbitted at the lower end, split and clamped together by four bolts, lock nuts and cotter pins. Steel shims varying in thickness from 5 to 12 1000 in. are used to facilitate making adjustments. The upper end is rigidly fastened to the wrist pin, which is hollow, of case hardened steel, the ends being ground and having their bearings in the bosses of the piston. The holes at the ends of the wrist pins are tapered, leaving the thickest of the metal at the middle for strength. As it is rigidly fastened to the connecting rod, side slap and scoring of the cylinder is impossible. The crank shaft is made of a solid piece of crome nickel steel as just described, with a flange at the rear end for bolting on the flywheel. The cranks are set so that the two middle and two end pistons move together. Three bronze babbitt bearings support the crank shaft, one at each end and one at the middle. These bearings consist of bronze sleeves with holes drilled through the outside. Babbit is then poured into the sleeve and reamed out, the babbit filling the small holes in the sides of the sleeve acting as an anchor. The cam shafts are machine steel and run in three bronze bearings. They may be removed through the front of the case. The cams are of hardened machine steel, keyed and taper pinned to the shaft. The cam shaft on the right side of the engine is for the make and break ignition and will be described better under sub-head "Ignition."

The left hand cam shaft carries both the inlet and exhaust cams. The valves are made of one piece valve nickel steel. The inlet valves are slightly larger than the exhaust valves. The push rods are of steel adjustable in length by means of a screw and lock nut, and slide in bronze housings, which are held down in pairs by yokes. The lower ends of the push rods carry hardened steel rollers whose extended axles sliding in guides pre-



vent the rods from rotating. The valve springs are rather light gage but of large side diameter of coil. The lower end of the spring rests in a cup-shaped washer as

shown in the sketch. The washer rests in turn on a key which slips through a slot in the valve stem. To remove, simply lift up the washer and slip out the key. The cast aluminum inlet pipes lead to chambers between the inlet valves and are securely held by cap screws with lock washers under the heads. The joint is made tight by asbestos gaskets. The cast iron exhaust pipe is of square section in one piece, and held the same as the inlet pipe. The flywheel is about 20 in. diameter, weighs 90 lbs., and is cast steel with blades which draw air through the radiator, no other fan being needed. It is held by eight bolts to the flange on the crank shaft. The crank case is one aluminum casting, the front and rear end being extended to form feet, one at the front and two at the rear, making a three-joint suspension. Two large hand holes with thumb screws holding the covers are located on the left side of the engine. The lower half of the case may be removed without disturbing the main bearings.

New Columbia Mark XLVI front axle, showing steering knuckles and roller bearing

LUBRICATION.

The oiling system is a combination of the flooding and splash systems. At the base of the engine case is a receiving drain tank into which the lubricating oil, after doing duty, strains. From this reservoir a positively driven gear pump at the rear of the engine case draws part of its supply, and the rest is drawn from a pipe leading from the main oil tank on the left of the car near the running board and about on a level with the drain chamber or well. This oil the pump delivers through a hole cored out of the engine case, to the middle crank shaft bearing, and through two pipes to the end bearings. All three of these bearings are flooded, the surplus oil flowing down into the crank case, is prevented from at once flowing into the well by a dam which keeps a constant level in the case and allows the crank pin and cam shafts to be oiled by splash. The upper half of the crank case is so cast as to form a thin webb across the opening to each cylinder, and the connecting rods act through slots cut in these webs. This prevents the cylinders receiving too much oil. Each piston, to facilitate oiling, has three grooves cut into it, one above the pin, and two near the bottom.

COOLING.

A Whitlock cellular cooler is used, from the bottom of which a centrifugal pump draws the supply for the jackets. The blades of the pump are of bronze, the casing of aluminum. The pump is driven by combination bronze and fibre gears from the gear on the end of the iguition cam shaft. It is accessibly located on the right side of the engine. A large tube connects the inlets into the lower part of the water jackets. The water from the pumps flows through a small tube located on the inside of the large tube until almost opposite the rear cylinder, so that the water for the forward cylinder must work its way back between the tubes. This arrangement aids greatly in dividing the cold water equally between the cylinders. The water then returns to the top of the radiator through copper tubes from the cylinder heads

The carburetor is one of their own make of the float feed, automatic air inlet variety, but differs in many respects from the ordinary type. The float chamber is of the usual form. The liquid, being drawn from the nozzle when the accelerator pedal is in use, rushes through a rotary valve to the inlet pipe, but, when the engine is under the governor control, this rotary valve is closed and the rush of gas is through a side passage, the openings from which into the inlet pipes are controlled by the governor. The auxiliary air inlet is of the dash pot principle, and is exceptional in being entirely without springs of any kind. As the vacuum in the chamber above the movable piston of the dash pot increases, owing to the engine suction, the air rushes in from below through small holes raising the piston until holes in its sides register with holes to the outside air allowing an inlet of auxiliary air. The piston is prevented from suddenly closing and cutting off the air abruptly, by pocketing some air below it which can escape only through a small hole at the bottom.

A centrifugal ball governor is placed on the front of the large gear driving the cam shaft. The governor weights act against a small four-leaf spring to regulate the size of the openings in the by-pass of the carburetor, but does not in any way affect the main rotary throttle valve which is entirely controlled by the accelerator pedal

The usual spark and throttle levers are on the top of the steering wheel working on a notched circle which is stationary and does not move with the wheel. The throttle is on the left and the spark on the right. The action of the spark lever in advancing the time of the make and break spark will be explained under "Ignition." The throttle lever rotates a rod running down the inside of the steering column. This rod, connected by short rods with ball joints, operates a small shaft across the dash and under the hood, and transfers the motion to a pull rod which changes the tension on the four-leaf governor spring before mentioned. The only connection direct to the carburetor, is from the accelerator foot pedal which controls the main rotary throttle valve. When this is open the

mixture has a free road to the engine which instantly speeds up, so that the governor weights fly out against stops and remain there. In this position of course the by-pass valve operated by the governor is closed, but this has no effect owing to the very large area now held open by the main throttle. In this way the accelerator pedal virtually throws out the action of the governor. By regulating the governor spring tension when the hand throttle is closed, a setting may be had which will run the car at any desired speed under these conditions.

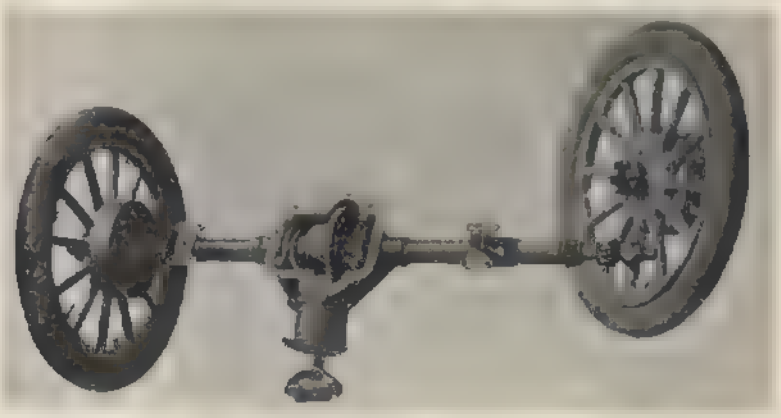
BRAKES.

Two brakes are placed on the rear wheel drums. An inside expanding band type is operated by the emergency ratchet lever at the side of the car. The pull is through a flexible cable and equalized by passing through a tube to the opposite side of the car. The drums are steel castings; the shoes, as in the large cars, are steel with cast iron faces. A toggle joint forces the shoes into

ball thrust bearing on the square shaft of the clutch. The thrust bearing is adjustable in distance from the clutch which gives a means of locating to a certain extent the at-rest position of the clutch pedal. The toggle joint makes it possible to overcome a rather stiff spring without having to exert much force upon the foot pedal.

TRANSMISSION.

A very compact three-speed sliding gear in an aluminum case the sides of which are formed into a three-point suspension is located under the body as a separate unit. It has a direct drive on the high with the lay shaft rotating idly. The gear shifting lever on the right of the car works in an H slot on the selective principle. All the shafts and gears in this transmission are of nickel steel, oil treated and extremely tough. The transmission is packed with oil and grease. The bearings have each an individual grease cup and pipe to them. These grease cups are located conveniently under the edge of the



Commercial Mark XLVI. Rear axle construction, showing top of differential case removed, universal joint and method of driving wheels by dog floating inside of hub, no strain due to weight of machine come on the driving shaft.

contact with the drum. The action is extremely powerful. This emergency brake also throws out the clutch. The outside contracting band or strap brake is controlled by a foot push pedal operating a transverse shaft which has small arms on its ends pulling turnbuckled rods to the brakes. This brake does not throw out the clutch. The automobile builders are just waking up to the fact that it is dangerous to have all brakes throw out the clutch. In this case if anything is wrong with the brakes the car is left absolutely free to coast, not even having the brakeing effect of the engine, which is soft in its action and extremely effective.

An aluminum leather-faced cone clutch is used. This takes hold very smoothly, due to the fact that there are four spring pressed bronze shoes which engage first and take off the sudden shock often noticed in ordinary cone clutches. The clutch is engaged as usual by a stiff spring, the tension of which can be adjusted. Fast to the back of the clutch is a nickle steel universal joint through which the drive is communicated to the transmission. A foot pedal acts upon a toggle joint which moves a forked arm acting against a

frame near the foot boards. A shaft drive with two universal joints of their own make runs to the bevel gear drive and four bevel gear differential. The top of the case is removable, exposing the gears as shown in the illustration of the rear axle. The front end of the casing is split and holds the piece carrying the bearing of the bevel gear pinion, by being clamped down upon it. This piece is held from rotating by keys. This construction allows the removal of the driving bevel pinion and shaft by simply pulling a pin out of the universal joint and loosening the two clamping bolts. The ends of the steel casing around the live axle are extended and carry the Timken bearings of the wheels. The live axle is square at the end, fitting into the differential, and its outer end carries a dog having six projections or lugs which fit into the end of the wheel hub by which its rotation is communicated to the wheel. This live axle does not carry any of the car weight and simply rotates the wheels. The wheel bearings are held by washers and lock nuts, so that it would be impossible for a wheel to come off, even if the live axle were taken out. The rear axle casing is tied to the frame by

a short hollow strut rod with a swivel connection at one end

IGNITION

Contrary to their usual custom, this car has been fitted with make and break spark by a Remy low tension magneto driven by a continuation of the pump shaft with an "Oldham" joint in it. The magneto runs at the same speed as the engine. No auxiliary batteries are used, but can be had if desired. Sufficient spark is furnished by a half turn of the crank to start the engine. The igniter blocks are ground and lapped to a gas-tight fit into the cylinders. The stationary point is almost like an ordinary mica spark plug, made gas-tight by a screw collar which forces it down into a 30 degree seat. The movable point is held in contact with the stationary one by a coil spring and the break is obtained by the action of a push rod actuated by a cam. Both points are tipped with an iridium platinum alloy. The igniter push rods are held down into contact with the cams in pairs by a spring depressed yoke, the ends of which fit into slots in the push rods. The spark advance and retard is arranged as follows: The cam shaft consists of a solid shaft driven by the 2 to 1 gears, and around its outside a sleeve integral with the cams. This sleeve is compelled to rotate with the actual shaft by means of a ball about ⅜ inch diameter, which is set into a hole on the inside of the sleeve and fits into a helical groove in the shaft. By pushing or pulling on the end of the sleeve the ball is guided in its slot, and the sleeve and cams are rotated with reference to the shaft, thus advancing or retarding the time at which the push rods act. The bus-bar is in the form of a strip of brass with snap-buttons, about like those on a kid glove, which snap into sockets in the ends of the plugs, making a good contact and one instantly removable. There is practically no wiring. The magneto is grounded on the engine; a wire runs to a switch on the dash and then to the bus-bar. No other wires are necessary. The spark is a very large one and is perfectly regular, even at high engine speeds, and is very little affected by [illegible] the cylinders.

Increasing the Horse-Power of a Gas Engine

Although, in practice, the most economical car-motor is the one which gives most power for the fuel consumed when working far below its maximum effect, because this moderate power production is very often required while the extreme power production is but seldom demanded, a very high horsepower for the cylinder diameter must always be accepted as evidence of gas-engine perfection. Hence, of two engines, same bore and stroke, the one which will pull most pounds on a prony brake lever at say 1000 R. P. M., will certainly be accepted as the better of the two. To the average purchaser the more powerful motor will always seem the better one, though its up-keep charges, owing to high compression, may be in some instances somewhat greater than with lower compression; but it is indeed hard to see why a crank and rod which can work under say 400 pounds initial pressure to the inch one way, should be much injured by working under say 85 pounds terminal pressure the other way.

Broadly, it is safe to say that the gas engine showing best under the brake is the best built, and is therefore more likely to stand up under severe duty than one showing a lower horsepower, and this view makes the preference of the purchaser for the high-power engine wholly defensible, since the motor which not only gives the more power but at the same time is the more durable, is certainly the best one to buy.

This makes high maximum effect a much coveted distinction in the eyes of the car-motor builders, and the exact steps taken to more than double the maximum B. H. P. of a pair of opposed 4½ x 5-in. car-motor cylinders are of so much interest that many gas-engine makers have asked the writer for the details of the operation: this article is written to answer those questions, fully and completely. It may be said at the outset that some of the steps taken were exactly the reverse of what might have been expected.

A steam engine builder who desired to obtain more work from a piston of given diameter would increase his intake area, but in improving the Buick gas engine the intake area was much decreased by decreasing the valve-lift, precisely the reverse of what would have been done by the steam engineer.

While accuracy of the cylinder bore was much more closely approached at the end than at the beginning of the motor performance betterments undertaken by the Buick Co., the cylinders were, throughout, bored and faced on a special boring and facing machine largely used by motor car engine builders and generally accepted as accurate, which was supposed to make straight and round cylinders from the first, but which did not really do so at the outset, though closely approximating accuracy at the end.

Of course, compression was increased very [illegible] about 100 pounds absolute, or 85 pounds gauge, which is generally accepted as the safe self-ignition limit, though the writer has been assured that 120 pounds gauge has been used without an instance of charge firing by compression only.

The substitution of babbitt for the best bronze bearings gave favorable results, and making the cylinder bore truly round, straight and parallel, did most of all to obtain the surprisingly large final B. H. P. gain. The history of these experiments is as follows:

The Buick shops were turning out some wagon motors, and were giving special attention to a pair of 4½ x 5-in. opposed-cylinder model, cam-shaft at the bottom of the crank-box, valves lever-operated, horizontal, all ports 1¾ ins. diameter, which showed at the time of beginning the improve-

"The Reeves" Four Cylinder Air Cooled Car-Motor

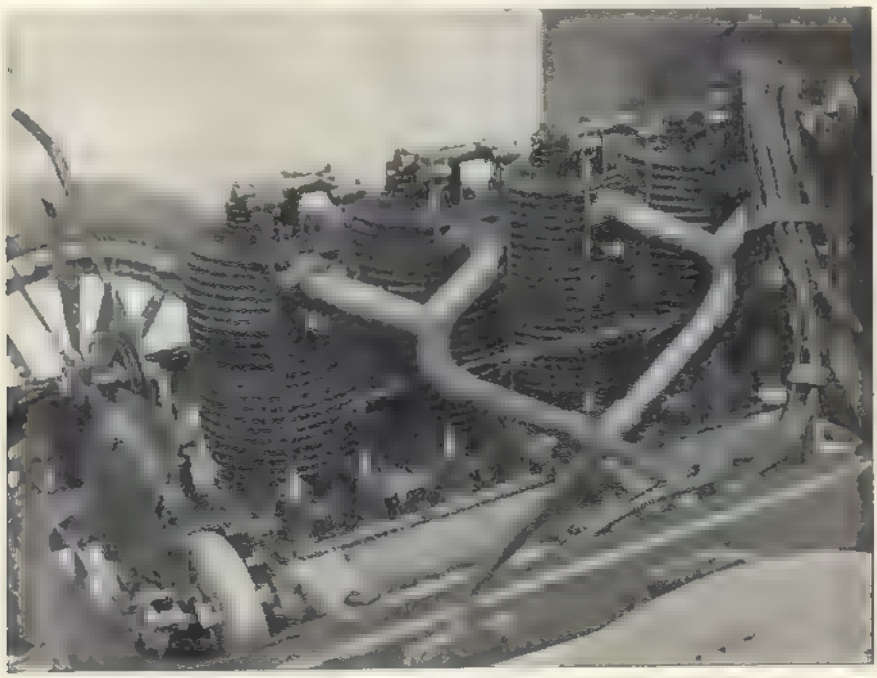
HUGH DOLNAR

The Reeves Pulley Co., Columbus, Ind., U. S. A., was incorporated in 1888 and at once began business as large makers of wooden pulleys for general use. This business has steadily grown, the Reeves wooden pulleys having an accepted position as best for certain installations, the world over.

Mr. M. O. Reeves, Vice-President and general manager of the Reeves Pulley Company, took an active interest in the motor car from almost the first of the American awakening to the value of mechanical traction on common roads. He built his first car, driven by a pair of vertical 2-cycle gas engine cylinders in 1898.

tried out in two sizes, each 4-vertical 4-cycle cylinder tandem, cooling fan in front. The specifications of these motors are as follows, the larger being "Model E," and the smaller "Model D."

Specifications of 18-20 H. P. Reeves Four Cylinder Air Cooled Engine, Mode E. bore of cylinder, 4 ins.; stroke of pistons, 4 ins.; horse power at 1250 R. P. M., 20, 1000 R. P. M., 18; total height from center of crank shaft to top of cylinder, 10¾ ins.; height from bottom of arms to top of cylinders, 16¾ ins.; length over all including fly wheel 38 ins.; total width across ends of supporting arms, 19 ins.; height from center of crank shaft



Reeves 4-cylinder air cooled 25 horse power. Cylinders 4x4, 18 to 20 hp. Perfect air cooling, no distortion of barrels. Driving belt and engine view showing intake side of complete motor in car from which it was taken. At least 18 valves being displaced to show valve action clearly.

Mr. Reeves has followed car building pretty steadily ever since, and has produced a considerable number of cars to his own satisfaction, since that comparatively early date in motor car construction. None of these cars, which represent a modest fortune in construction-cost, has ever been sold, Mr. Reeves wishing to something which pleased his own critical eye, before offering anything to possible purchasers. Six Reeves cars, driven by 4-cylinder, 4-cycle air-cooled motors were begun early in 1905, the intention at that time being to enter the field of complete car building. Some of these are now on the road, but the company now offers "The Reeves" Air-Cooled 4-cycle motor of the 1908 product. This motor has been thoroughly

to base of supporting arms, 3 in.; inside clearance—width of sub-frame required, 16 ins.; length over crankcase, 28 ins.; horizontal distance between supporting centers of arms, 24 ins.; lateral distance between supporting centers of arms, 17½ ins.; diameter of crank shaft, 1½ ins.; diameter of crank wrists, 1½ ins.; length of bearing in wheel end, 3 ins., weight of bearing, commutator end 2 13-32 ins., length of center bearing 2 ins., length of crank wrist bearing 2⅜ ins., diameter of fly wheel, 15¾ ins.; face of fly wheel, 4 ins.; weight complete, 300 lbs.

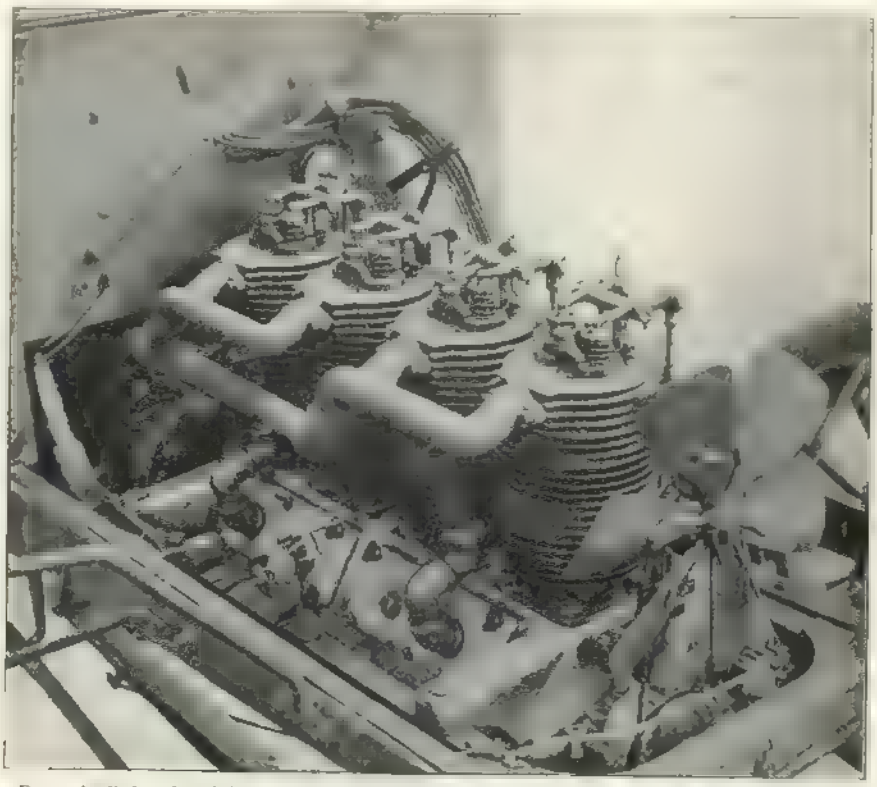
Details of 12 H. P. 4-Cylinder Air Cooled Engine, Model "D." Bore of cylinder 3¼ ins., stroke of pistons 3½ ins., rated power at 1200 R. P. M., 12; total height from center

[illegible] to top of cylinders 10½ ins.; width [illegible] all (including fly wheel), 29 ins.; inside clearance, or width of sub-frame required, can be made any width least width about 16 ins., length over cylinders, 21 ins., diameter of crank shaft, 1 5-16 ins., diameter of crank pins, 1 5-16 ins.; length of bearing, fly wheel end, 2 3-16 ins.; length of bearing, commutator end 2 3-16 ins.; length of center bearing, 2⅛ ins.; length of crank wrist bearing, 2¼ ins.; diameter of fly wheel, 15½ ins., face of fly wheel, 3 ins.; weight of engine complete about 275 lbs.

The design for this air-cooled cylinder leaves the cylinder head without cooling ribs, making the general outline of the cylinder symmetrical, and of good form for construction purposes. The inlet and exhaust valves are the same and interchangeable, caged, the cages slipped into finished seats in the heads, and held with two straps and two screws for each cylinder, all as clearly shown in the illustrations. The valve port diameters, both the same, are 1⅝, the valves are 1 9-16 large diameter, seats all 45 degrees.

VALVE ACTION

The cam-shaft is on the crank box, splash lubricated, ⅞ diameter soft. The cams are hardened, fixed to the cam shaft by Woodruff keys, "burred" on ends to hold cams endwise. The cylindrical roller forks move vertically in bronze sleeves, splined, screw fixed to the top of aluminum base. There is 1-16 clearance between [illegible] and the roller forks which carry the tool steel hard rollers, working [illegible]. The vertical rod is forked at the top to take the out end of the drop-forged valve lever, overhung on the end of the ⅜ diameter tool-steel lever center pin, carried in a drop forged steel pedestal, screw held to top of cylinder head, pin projecting on both sides of pedestal to take the two levers. The 1-16 of lost motion between the roller slide, or lifter, and the lever rod is taken up by the upward thrust of the small coiled springs which press against collars brazed on the lifting rods, so as to keep the lever and valve stem always in contact, and prevent clicking.



Reeves 4-cylinder air-cooled car motor. Left hand oblique, same motor shown in Fig. 1. The wiring was removed and pushed back to show the valve action clearly. The exhaust piping and base plates to be show the regular form.

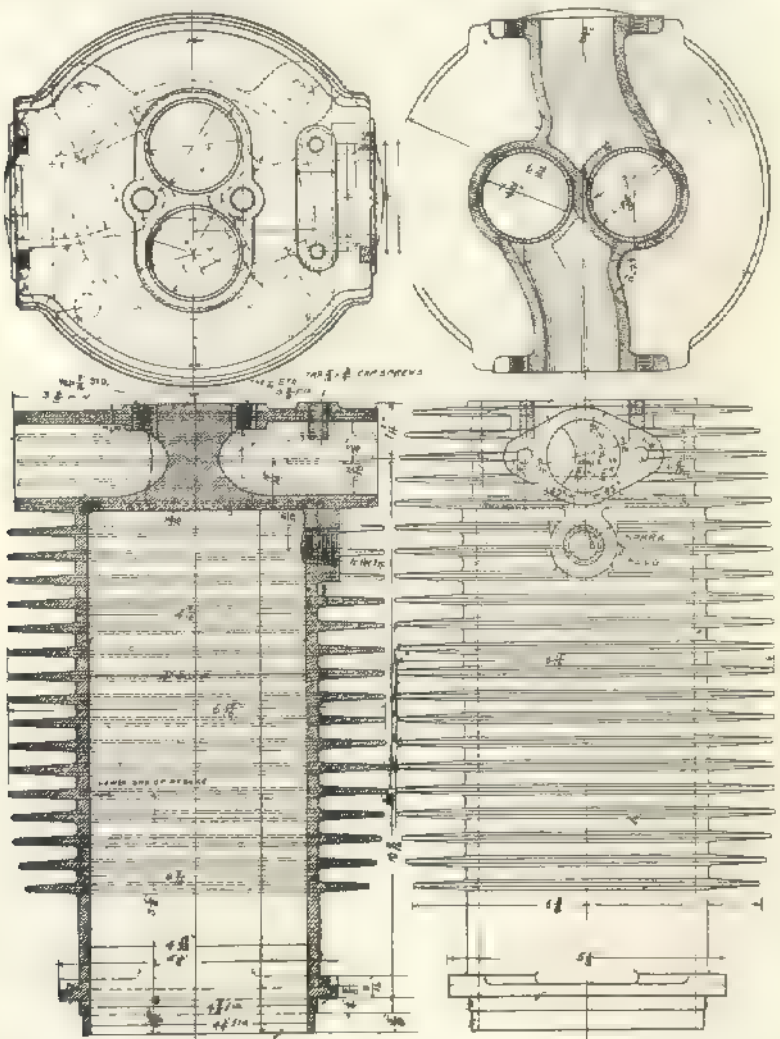
The cylinders are held each by 4 hexagon head screws, tapped up through the base, screw heads inside, underneath, and nuts on top of the cylinder holding flanges.

The piping on the intake side is correct, that shown on the exhaust side will be changed to ordinary single spray form with 4 branches. The form shown is a remainder of a discarded construction.

THE FAN

When running forward in a still day or against the wind, the fan is no use at all, the motor cooling entirely by the movement of the car. When running with a strong wind or with the car standing still, the fan is needed. The fan is brass, substantial, carried on Hess-Bright ball bearings, is 15 ins. diameter, and

is given 1.8 turns to one turn of crank shaft by a ⅝ round leather belt. This fan, 6 bladed, makes a good strong blast to the rear, which is not specially directed against the cylinder flanges, but is given plenty of room to travel to rear inside the hood, which is about 20 ins. wide. The consequence of this free air way is that the rebound of the air current when it strikes the front of the frontboard cools the rear cylinder best of all. The front cylinder is next best cooled, and two intermediates are cooled about alike. Hard driving about 28 miles did not leave any heat color on the rear cylinder head, while it made the front head show light straw color, and the other two heads show dark straw color on spots scraped bright to show the heat colors



Reeves air-cooled cylinder working drawings. This cylinder is cast head down in the mould in a dry sand outside core made in two halves. The mould was gated at the top and poured with a horn gate from underneath, as would be expected. These cylinders were cast without trouble, first time trying. All important dimensions are given

THE CYLINDER.

The working of this motor seems to indicate more cooling rib surface than is made effective by the air current as applied, and it would be interesting to know whether half the number of cooling ribs, with double space between them, would cool the cylinder as well as these 21 cooling flanges shown.

This is a simple and easily made air cooled cylinder. The flanges are spaced about 29-64 center to center.

The valves have proved very satisfactory. They have been used over a year, and have shown no faults.

There seems to be no valid reason for the fourth ring at the bottom of the piston, though rings in that place are commonly applied by motor constructors. There is a very general tendency at this time to question the present piston packing practice in car-motors, and it is not certain that the "snap ring"

will continue to be the established form for packing rings.

The connecting rod is good length, 9 ins. for 4-in. piston stroke. The usual practice is followed, a non-adjustable bronze bushing on the piston pin, and babbitt and liners on the crank wrist.

The crank box is two aluminum castings, the top one fixed to the chassis sub-frame, and having the crank caps fixed to its under side. The lower member has four individual oil-pits, with inclined troughs to circulate the splash. The lower member is held up with ⅜ studs, hexagon nuts and split-pins, and can be easily removed, giving access to the crank-shaft and rods in working relation.

The lubrication is by splash, oil basins fed by mechanical oiler.

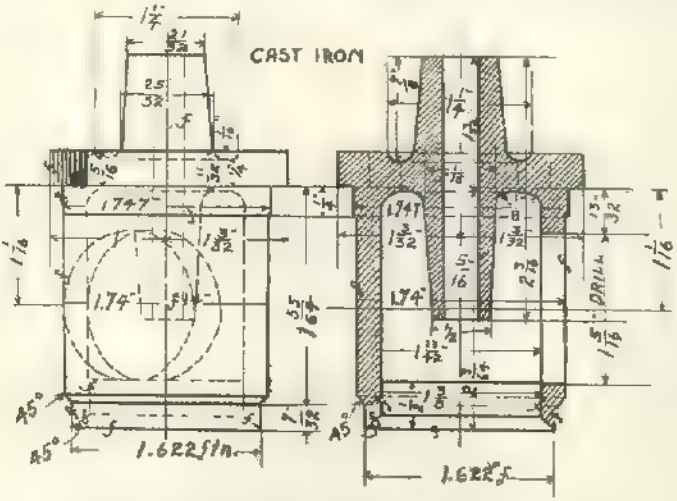
The spark plugs are placed horizontally a little below the middle of the compression chamber.

The crank-shaft is 40 carbon, made from a solid flat slab.

made at the close of a cloudy, cool day. The total distance was about 28 miles, run out made in 41 minutes, and 34 minutes return, with M. O. Reeves driving and the writer as passenger. The motor showed no signs at all of overheating

A second run was made in the forenoon of August 18th, weight of car and passengers 2240 lbs, L. Reeves driving, M. O. Reeves and the writer passengers. The run was a round trip, St. Denis Hotel, Columbus, Ind., to Jonesville and return. Jonesville is probably at least 14 miles. The road surface is in the main extremely good, loam, gravel and clay, no dust, almost no mud, but with numerous small bridges which forced slowing down because of ruts at approach and leaving. Time of run out 34 minutes. Time of run back 32 minutes. No record was kept of horse teams on the trip out. In the return trip 23 horse drawn conveyances were passed, in several instances forcing a complete stop.

The wheel base of the car used was 96 ins.,



Reeves air-cooled valve cages, grey iron, working drawings.

The commutator is placed on a stationary sleeve, and driven from the front end of the cam shaft. The cam shaft gear is bronze, spur, 10 d. p., ⅞ face, steel pinion on the crank shaft. The gears are covered, casing readily removable.

The Reeves Company are now finishing, ready for prompt delivery, four small cars, driven by the 3¼x3¼ 4-cylinder air-cooled motors. While the company does not intend to produce any more complete cars, arrangements can be made by purchasers of Reeves air-cooled engines for the use of the complete drawings from which these cars were built.

ON THE ROAD.

Two runs were made on two separate cars driven by the Reeves air-cooled 4-cylinder motors.

The first, late in the day, August 17th, was made in a car weighing, with passengers on, about 1800 lbs., the four air-cooled cylinders being 3¼x3¼.

The run was a round trip, St. Denis Hotel, Columbus, Ind., to Jonesville and return, gauge 56 ins., wheels 32 ins., 3½ in. tires. Miles run about 28, running time 66 minutes, fuel used 1⅞ gallons of gasoline.

COOLING RIBS

This car was driven by a Reeves 4-cylinder air-cooled motor, cylinders 4x4 ins., fan 6 blades, fan diameter 15 ins., round belt ⅝ in. diameter, 1 8 10 turns of fan to one turn of crank shaft. Cylinders tandem, fan close to forward cylinder, in front, and rear cylinder close to front of front board. The only air current guide is the internal surface of the hood, which is of uniform section throughout, large enough to more than freely cover the motor valve action, say about 21 ins. wide inside. The cylinders over the cooling ribs are 6 15 16 ins. diameter, spaced 7 1 16 ins. apart on the motor frame. The cylinder walls are 7-32 thick. As the cylinder walls outside diameter is 4 7-16 the cooling ribs have a depth of 1¼ ins. on a side. These ribs are 29-64 ins. center to center, 3-32 thick at their outer edges, and 11-64 at the root, where they join the cylinder wall.

As will be noted from the detail drawing the cylinder heads are flat, except for the valve seat bosses ⅛ high. This makes a clean job of the integral cylinder-head, same as if the cylinders had no cooling attachments. Cooling ribs begin immediately below the head, and are continued downward, 21 in number, about 9 ins., extending about 2 ins. below the low point of the head of the piston. These engines have no compression release cocks. Small bib cocks are seated about ½ in. above the low point of the piston heads, and are opened to see if a particular cylinder is firing its charges. These cocks are not opened for cranking the engine, the start being made with full compression.

COMPRESSION.

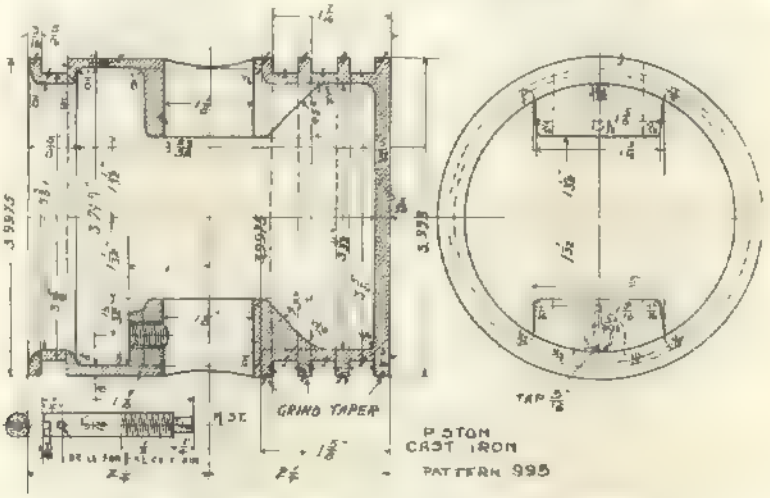
The compression used is quite low, about 57 lbs. absolute, or 42 lbs. gage. The low compression makes the motor crank easily, and also makes the brake horse-power low for the cylinder diameter of both these four cylinder motors.

uneven surface. The combined piston areas of the two motors are to each other as 42¼ to 64, and the small motor drove a total weight of about 1800 lbs. This gives the large motor a load of about 35 lbs. to the circular in. of piston, and the small motor a load of 42.6 lbs. per piston circular in. area. The small car runs were made in 41 minutes out and 34 minutes return, so that the small motor was doing considerably the more work per inch of piston area.

HEATING.

Neither of the four runs between Columbus and Jonesville showed any motor discomfort from heat, and both the large and small motors were perfectly fit at the ends of the round trips.

There was no way to tell exactly the cylinder temperatures, but bright spots were made by filing and scraping two places bright on each cylinder head, and the different colors showed by these bright spots gave, of course, a close comparison of the relative cylinder temperatures.



Air cooled motor piston working drawing reproduction.

The larger motor, four cylinders, 4x4 inches, shows 18 to 20 H. P. prony brake, and the smaller engine, 4 cylinders 3¼x3¼, shows from 10 to 12 H. P. The two engines are now being made similar in every particular, like the larger, from which all the illustrations here given are taken.

The small car was driven in the first run by four 3¼x3¼ cylinders, air cooled, same general arrangement as shown by these illustrations except that the intake valves were automatic. This style of motor is now discontinued, mechanically operated valves being fitted all around, for both sizes of motor.

The run on the small car was made at the close of a cool cloudy day, with rain threatening, and the air was noticeably cool. The same run from Columbus to Jonesville and return, was made with both the large and small cars, but the small car run was made over a different route going, which was not nearly so good a road as that for the other three trips, having more turns and the more

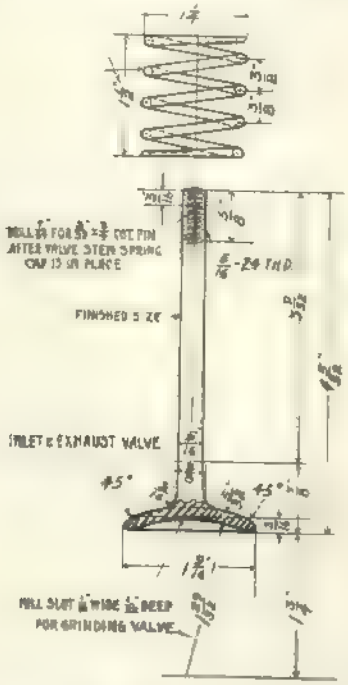
The small cylinders, which took a very little more time to do considerably the more per piston in. work in, were much the hottest, though none of the cylinders was heated enough to come near charring lard oil. The highest temperature record was dark straw color with dashes of pale blue on the heads of the second and third cylinders of the smaller motor. The first cylinder, next the fan, showed a dark straw color in spots, while the fourth cylinder next to the front-board, and farthest from the fan was the coolest of the lot, showing only a light straw color.

The large motor showed the same way, the intermediate cylinders being heated about alike, and showing light straw color flecked with dark straw color; the front cylinder, next the fan, showed light straw color, and the rear cylinder of the larger motor, farthest from the fan, was not hot enough to change the color of the bright spots at all. To char lard oil takes a very pale blue, where the

dark blue begins to fade from increase of temperature, and to "blaze" lard oil requires a temperature much above the heat ranges which "color" steel and iron. The colors which the bright spots on the cylinders showed were certain proof that the heat was not nearly enough to interfere with the proper lubrication with even lard oil, which burns at a temperature many degrees below that of "cylinder" oil, commonly used for gas engine lubrication.

The fact that perfectly comfortable cylinder temperature was not exceeded, was also very convincingly shown by the prompt response of the motor to the demands for power.

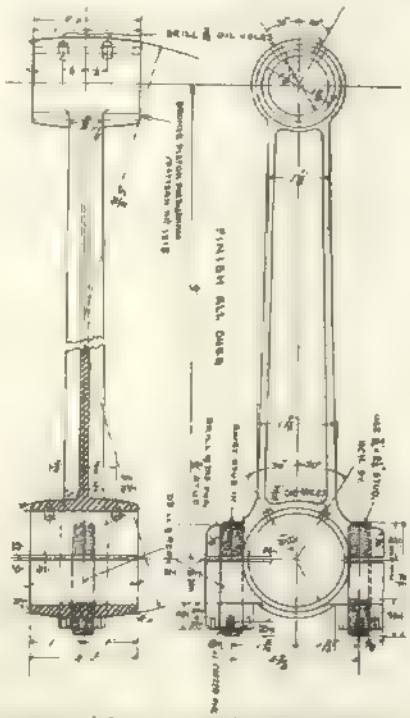
The Columbus-Jonesville route is very much like the Detroit Pontiac run, though the road


DRILL FOR PIN AFTER VALVE STEM SPRING CAP IS IN PLACE
FINISHED SIZE
INLET & EXHAUST VALVE
45°
DRILL SLOT WIDE DEEP FOR GRINDING VALVE

Reeves air-cooled 4-cylinder motor, working drawing for both exhaust and intake valves. The material of the valves and their integral items is 23 per cent. nickel steel, 25 per cent. nickle was tried, but was too difficult to machine, being too soft and weak. Nickle has a high heat resistance with very slight expansion, making it suitable in these particulars for gas engine valves. These 23 per cent. nickel steel valves [illegible] so far.

surface of the Indiana route is much the better of the two. The hills are about the same in each, perhaps a shade stiffer grades Columbus to Jonesville. On all these hills but one, the big motor could easily accelerate the pace, all the runs being on the high gear with both cars. One hill, taken at perhaps 15 or 18 miles, was about a balance between the motor and the grade. In all other instances the car had plenty of power to spare, and in some of the long smooth stretches of beautiful road struck close to a 40 mile clip. In all four runs a good many stops and slow downs were made for horses, in a number of instances driven by women, so that the time made was exceptionally good for moderately powered cars on country roads. Both cars were extremely well handled, but of course that was against the air cooling, as the quick driver gets the more foot pounds of work out of his car, and the slow driver burns the less fuel per minute run.

These two runs showed exactly the same relative cooling effect in all 8 cylinders. The rear cylinder, farthest from the fan, should, of course, be the worst cooled of the lot, but quite to the contrary it is very much the coolest of the four; the front cylinder next the fan is the next best cooled, and the two intermediates are cooled about alike. This shows beyond a doubt that the hood is too wide to force the air through the narrow



Reeves air-cooled motor connecting rods. Bolts steel [illegible] screws bronze bushed on top. Bolts adjustable, split and babbitted at wrist end, stud-nuts castellated and split pin retained. The drawing is fully self explanatory

rib spaces of the cylinders, hence the air goes comparatively cool to the front of the frontboard, and is there forced against the rear side of the rear cylinder as it goes down and out underneath the car. The rear cylinder thus has perhaps as much as 220 degrees of its circumference made effective cooling surface by the rebound of the air, not very much heated, from the front of the frontboard against the rear side of the rear cylinder. Perhaps narrowing the hood and a suitable placing of guiding wings on the inside of the hood, might make the four cylinders cool all alike in this motor, but so long as none of the cylinders are injuriously heated, and the motor under the hardest possible driving

is always promptly responsive to demands for power, it would be folly to add parts, even sheet-iron wings inside the hood, to obtain a different effect of no practical value whatever.

The result of these two trips was to fully convince the writer that these Reeves air-cooled 4-cycle motor cylinders cannot be over heated by use, and since the little motor was run at the end of a cool cloudy day in a very cool air, while the large motor did its work about noon of a very hot mid-August day, it seems safe to assert that the temperature of the cooling air makes no practical difference in the action of the motors. The little motor was much the more heavily worked, and its cylinders showed much the more heating, although, as before said, none of the eight cylinders was at any time hot enough to interfere in the slightest degree with efficient lubrication.

This story is given in detail, because air cooling, which takes away the radiator, the cooling water, circulating pump and cylinder jackets, and all water piping, hose and water-connections, is an important step towards the use of the motor car commercially, winter and summer alike, and is therefore one of the most interesting matters now in debate among motor car constructors.

The Reeves motors are perfectly air-cooled, and will not disappoint any purchaser or user by over-heating and losing power on the road. The motors were driven to the limit in hot weather, and were ready to do it all over again at the trip end, and that tells the whole story.

The "Reo Mountaineer"

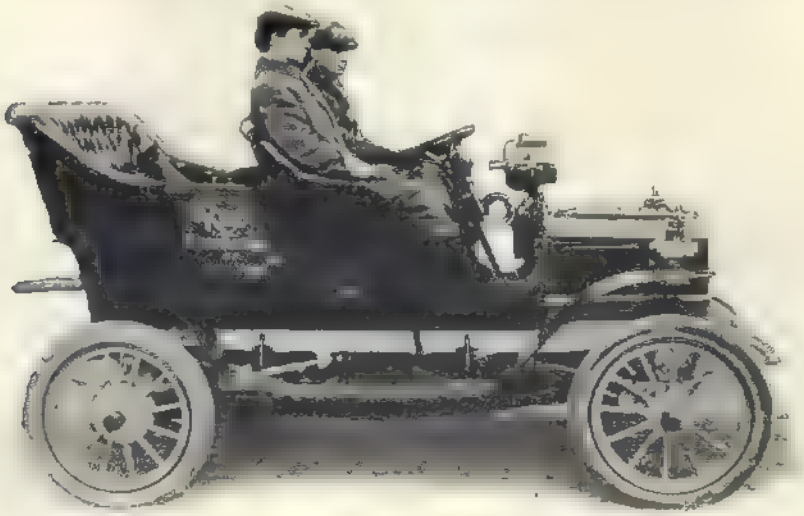
Percy F. Megargel started from New York City August 18 in a 16 H. P. Reo motor car for an automobile trip of 9,000 miles through some twenty four different states, and over fully twenty of the steepest mountain ranges in the United States.

Mr. Megargel is making this trip in the interest of the American Motor League, sending in daily reports on the condition of the roads, bridges, fords, mountain passes, sandy stretches of the Bitter Creek and Great American deserts, gasoline and oil facilities and water supply. This data will be of great assistance to all trans-continental tourists in the future.

The automobile selected for the trip is a 16 H. P. Reo, manufactured by the Reo Motor Car Company, of Lansing, Mich., and has been named the "Mountaineer." It is equipped with Diamond Builey tread tires. By a very clever arrangement, Mr. R. E. Olds, the designer of the Reo car, has arranged the tonneau so it can be changed into sleeping quarters when desired.

On Thursday, Aug. 19, Pope Motor Car Co., Hartford, Conn., gave an outing to all of its employees, the entertainment provided including an appetizing dinner at the Beach House, at Savin Rock. Cordial addresses were made to the men.

The Sorin Shokwai, 5, 3-chome, Ginza, Tokio Japan, plainly recognize the trend of the times toward mechanical propulsion of road vehicles and see in the future a big opening for motor cars and motor cycles in Japan. They therefore have added a motor vehicle branch to their large bicycle business and ask American automobile and motor cycle manufacturers to furnish them with catalogs and quotations. There are good prospects for both pleasure and transportation cars in Japan.



Percy F. Megargel in the 16 H. P. Reo "Mountaineer" starting on a trans-continental tour August 18 to gather touring information for the American Motor League.

The Simplex 1906 Two-Cycle 40 H. P. Touring Car

HUGH DOLNAR.

The Simplex Automobile Company, of Mishawaka, Indiana, U. S. A., capital stock $100,000 00, was organized in 1904, to construct motor cars after the design of E. J. Gulick, and in July, 1905, the first American Simplex car was on the road. This car has now been driven about 2,500 miles, is satisfactory to its owners, and will be offered to purchasers during the season of 1906.

The Simplex Touring Car motor, a pair of vertical two-cycle, water-cooled cylinders, is here first illustrated and described.

E. J. Gulick, designer of this car, which embodies many new ideas, all of which will be protected by patents so far as possible, was born near Syracuse, N. Y., in 1865, and began as an apprentice in a general machine shop in 1884, and during his early days in the shop was a pupil of Prof. Leonhard, who was in his day one of the foremost practical and theoretical mechanics of this country. Gas engines were part of the output of Mr. Gulick's first shop, and he became familiar with those constructions of that class and day before his apprenticeship of three years was ended.

Mr. Gulick began on automobiles by taking charge of the Packard shops in Warren, Ohio, in 1900, resigning in 1902 to become factory manager of the Alamo Manufacturing Co., gas and gasoline engines, Hillsdale, Mich., and left this company in 1903 to take up the automobile exclusively and independently. Mr. Gulick spent the next year on the drawing board and in making experiments with two-cycle gas engine details, and, having matured his plans fully, formed the Simplex Company as stated, in 1904.

The following are the specifications of the 1906 American Simplex 2-cycle Touring Car: Wheel base, 106 ins.; gauge, 56 ins.; wheels, 34 ins.; tires, 4 ins.; motor, 2-cylinder vertical, 5½x5 ins.; 2-cycle water-cooled, 40 B. H. P.; sliding gear, 3 forward speeds and reverse; seats for five passengers; weight 2450 lbs.; price $2500, including five lamps and a full tool-equipment; ready for extended touring.

NOTABLE FEATURES.

The end of 1905 sees the 4-cycle motor still so generally used as to make the 2-cycle

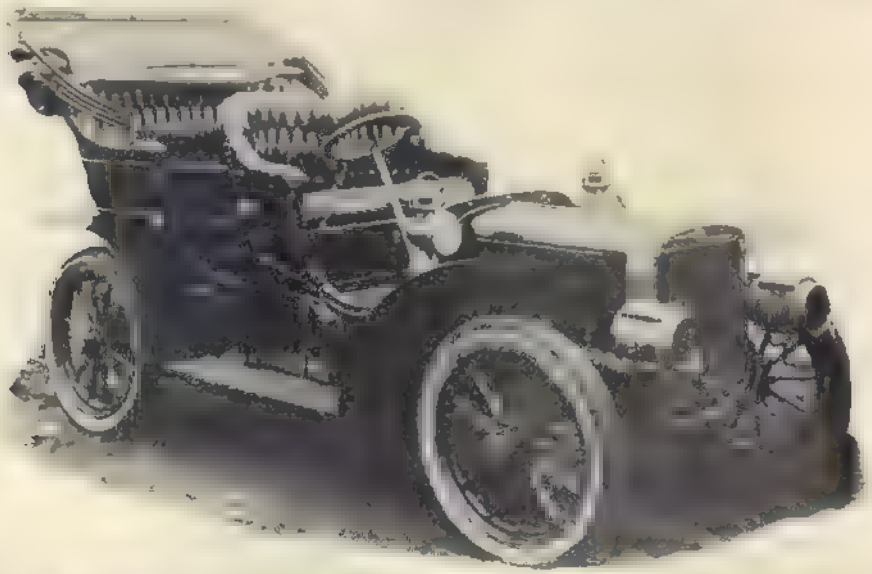


Fig. 395. American Simplex 2-cycle touring car, wheel base 106 ins., gauge 56 ins., wheels 34 ins., tires 4 ins., motor 2 cylinder vertical, 5½x5 ins., 2-cycle water-cooled, 40 B. H. P.; sliding gear, 3 forward speeds and a reverse, seats for five passengers, weight 2450 lbs., price $2500, including five lamps, and a full tool equipment; ready for extended touring.

motor driving of this new car its most prominent feature. The cylinders are supplied by crank box pressure, crank-box clearance reduced to about 1-32 on a side of moving members by filling the pistons with aluminum shells, and fitting the cranks with aluminum castings to complete the arm disks. The calculated crank box pressure is 7 to 8 lbs. maximum. The exhaust ports are 1⅛ ins. long lengthwise of the cylinder, and the intake ports are ⅝ long; bridges are introduced dividing each port into two openings, and these bridges are 1½ ins. wide on the exhaust side, cored to take water up to the cylinder wall. The intake area is about 3¾ sq. ins. The exhaust port area is about 5 sq. ins. This motor, two cylinders, shows over 40 brake H. P. at 900 r. p. m. with muffler in place. The twin muffler is two shells, 6½ ins. diameter, 24 ins. long; the steel cen-

tral tubes are about 3½ ins. diameter, pierced with ½ in. diameter holes opening to the cavities formed by opposing cupped steel disks to fill the length of the central tube. This well known form of muffler is silent and gives very little back pressure, if made of sufficient capacity. The exhaust enters the twin muffler shells equally, and the mufflers reduce the brake H. P. of the motor only about 5 per cent. There is no valve placed between the carburetor throttle and the crank box, and the high power shown by this pair of 5½x5 ins., 2-cycle cylinders is due wholly to good workmanship and small crank-box clearance.

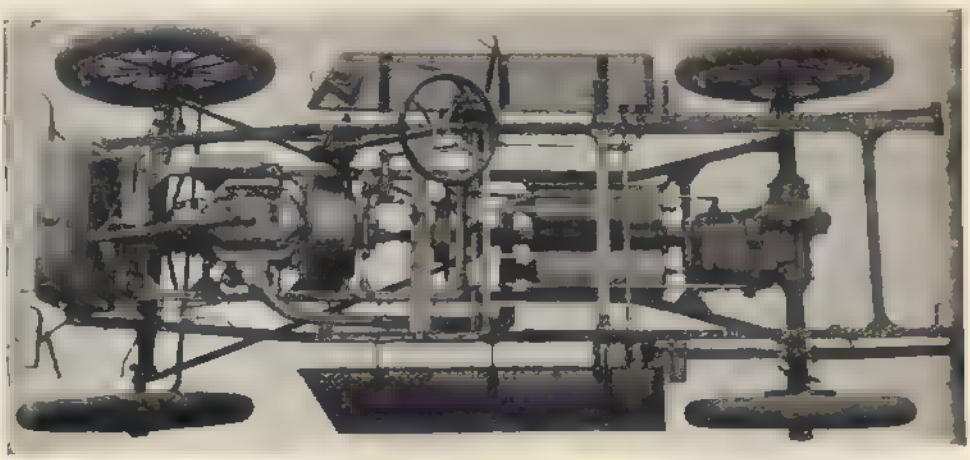
The second notable feature of the Simplex is the placing of a full length sub frame, rigid with the rear axle, and reaching to the front axle, where it is supported in a globe bearing on the front cross-spring. This globe bearing forms the inner end of a sleeve which makes

placement of moving parts of the propulsion system of this new American Simplex.

The fourth notable feature of great importance is shown in the rear axle sleeve and casting construction. The gear-box is divided horizontally, and flanged sleeves of unequal length are bolted to the gear-box ends to complete the rear axle assemblage casing. The full opening of the gear-box, by removing the cover, permits complete driving gear inspection, handling, disassembling and removal.

The change gear is all on very large Hess-Bright bearings, including the reverse pinion, and is an example worthy of close study. The whole rear axle and driving gear casing is of Parsons bronze, giving lightness with the certainty of strength and durability.

The driving wheels are applied directly to the divided axle ends, on tapers, fixed with keys, nut retained; with the exception of



American Simplex, chassis plan. This illustration shows the general arrangement of the sub-frame riveted to the rear axle and supported in front on the cross-spring over the front axle. The chassis frame carried on the rear axle frame and on a globe-joint in the middle of the front member of the sub-frame. Rise or fall either front wheel does not affect the level of the chassis frame cross-wise. The chassis frame does rise and fall at the rear when rising or falling to the bumps, but is not twisted by rear wheel rising or level, because the front globe-joint makes a full three-point suspension. The entire propulsion system is carried on the sub-frame, making it possible to do away with universal joints in the propeller shaft altogether. The single large exhaust pipe leads to twin mufflers merely to give more muffler cubic content. The change gear is carried in a Parsons bronze casing integral with the bevel gear casing. From a Kinetic standpoint the change gear should be placed as close as possible to the rear axle, and this location is also demanded for easy construction and substantial support. The only argument against the arrangement here shown is that more weight is placed on the rear axle and unsprung parts, as given in the specific tires of the driving wheels which are overworked and should therefore be loaded as lightly as possible. In point of fact, after many thousand miles of driving, mainly on dirt roads, the Simplex rear tires show very little wear indeed, and are the same to all appearances as when first put on. From the construction point of view, the Simplex rear axle and change gear casing must be regarded as ideal. It is best for work and best to build, and most likely to keep the parts where they belong.

the starting crank bearing, and also forms the central support for the three-point suspension chassis frame, carried on two half elliptic springs at the rear.

A third notable feature is the direct driving line to the bevel pinion, without universal joints, this desirable construction being made possible by the full length sub-frame, which of course carries the whole propulsion system.

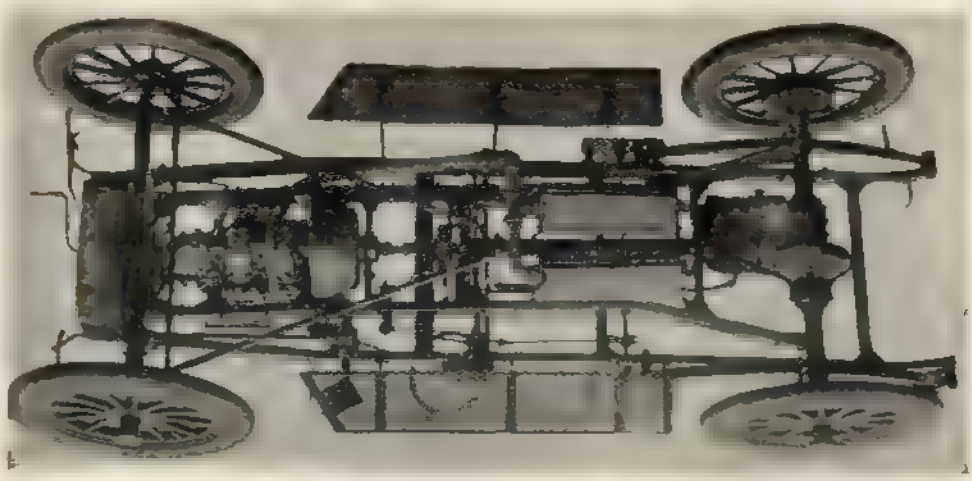
The illustration shows the car body position unchanged by 13 ins. variation of front wheel level; with one rear wheel raised 13 ins., as shown, the cranking was as free as with all four wheels on the level, showing that a road level variation of 13 ins. produced no dis-

these rear wheel keys there is not a driven key nor pin, nor a set-screw in this car. In all cases where turning is not resisted by square shafts, fixed feathers are used, the engaging members having split hubs and pinching screws partly in the shaft to maintain endwise location. All bolts in rough work have castellated nuts and split pins. Where the surfaces are finished the nuts are close fits, with no other retention than thread friction.

All levers and brackets are of Parsons bronze, steel drop forgings used for minor parts only, save in case of the front wheel stub-axles, which are of the usual steel forgings with Timken roller bearings.

The front axle has two long braces put through it, which unite in a fork having a globe at the rear. This globe is journaled to revolve freely as far as is required to accommodate the front wheel lift, and as these diagonal braces are abundantly strong to prevent any turning of the front axle by road obstacle influence on the front wheels, the single front spring, placed crosswise, has no turning impulse to resist, and at once becomes a wholly satisfactory agent.

The selection of materials is notable in a leaning towards the use of bronze in place of drop forgings and steel castings, and in the rejection of aluminum, which is employed only for the pump and commutator column and its cap. The crank-shaft journals are capped independently of the oil pit or basin, and even this basin, which serves simply to carry oil and is subject to no working



American Simplex, bottom of chassis. The ends of the triangular front axle bracing go through the axle forks forward, and end in a globe and on the rear a short distance from the middle of the chassis. The exhaust pipe is 3 ins. dia. This picture shows both front and rear axle construction, and gives a clear idea of the very substantial front axle triangular bracing, which has a globe-joint at about the middle of the chassis frame. This front axle brace pushes the front wheels over the road and turns freely to permit a very large lift or drop of either front wheel without twisting either the motor frame or the chassis frame, takes all fore and aft work off the cross-spring over the front axle.

stresses, is in this substantial car made of grey iron, instead of being an aluminum casting, as is usual.

THE SUB-FRAME

This is a tapering structure of channel pressed steel, greatest depth in front, where the sides are 6½ ins. deep, 21 ins. wide at the front end, which is directly over the front axle, and widening evenly in plan to about 34 ins. in width, where the sides are riveted to lugs cast on the bronze rear-axle sleeves. The sub-frame cross-girts are gusseted and riveted, and have top flanges which support the motor. The front cross member of the sub-frame is supported by the front cross-spring, globe perched, so as to have free universal movement.

The entire propulsion system is carried on the sub-frame, which is rigidly connected to the rear axle and its integral speed change casing, so that no universal joints need be fitted in the propeller shaft. This makes the propeller shaft assemblage very light, as is needful for silent gear shifting. The radiator and body are all that is carried on the chassis frame. The fan is carried on a high pedestal rising from the front cross-member of the sub-frame. The radiator water connections are rubber hose, uninjured by the slight movements between the sub-frame and chassis frame.

THE MOTOR

It is of course impossible to describe the motor in detail without sectional drawings, and these are now in course of preparation. The exterior illustrations will, however, enable the reader to understand the general description which follows.

The cylinders are grey iron, cast in a dual unit, having a common water-jacket, stayed to the cylinders by short radial ribs, which leave free water ways top and bottom of the jackets. The water circulation is natural, bottom of radiator to pump, top of pump to bottom of jacket, and top of jacket to top of radiator. The thermal circulation alone is effective without the pump. The pump is a four-winged spiral, vertical, 3 ins. diameter, 1½ ins. pitch, in a vertical column in front of the cylinders, and is bevel-gear driven, even turns with the crank-shaft, the pump shaft being carried upward through a stuffing box in the top head of the pump shell to take the distributor, governor and timer.

Pistons are of grey iron, 8¾ ins. long, flat heads with deflecting cavities in the edges and cooling ribs inside. Four snap-rings are used, ⅜ ins. wide, eccentric, 45 degree lap, 2 rings close to the top, one just above the piston pin and one near the bottom. The pistons are cored out inside to give the least possible clearance. The connecting rods are Parsons bronze H-section, full marine type, with white bronze split-bushings on the

crank-wrist, screwed up hard on liners. The piston pins are 1⅜ ins. diameter, hollow, hardened and ground, turning in the pistons and fixed in the rod ends, and are splash lubricated through an oil basin and oil hole.

IGNITION.

The low tension current is taken to the ignition chamber, which is in line with the water pump and capped. The upwardly prolonged pump shaft carries the governor and high tension distributor. The primary current may be supplied by magneto, dynamo or dry-cells. The gyroscope governor furnishes the sole spark time control, no hand spark advance being fitted. The throttle is governed by the horizontal regulating pedal on the foot-board, leaving the steering post to carry nothing but the hand wheel and worm-shaft. The pump column integral with the ignition housing containing the governor and distributor, makes a very neat combination, the pump

THE CLUTCH.

This is a leather-faced, multiple-disk, normally spring-engaged construction, as follows:

One grey iron disk is placed next to the fly-wheel, faced with leather, then a soft plate-steel disk, then a second leather-faced disk and a second steel-plate disk, then a third leather-faced disk and saw-plate disk, and finally a grey iron leather-faced disk, against which a ball bearing, which takes the spring-thrust, is placed. The working diameter of the disk is 11 ins. Leather and saw-plate-steel disks work together without oiling, and this seven-plate multiple-disk clutch is run dry with entire satisfaction. The engagement is soft and gradual, the holding power is great, and the release is clean and free, with no oil viscosity drag whatever, and the gear changes are made silently. The rear clutch-disk has a spring-thrust resisting ball bearing against it to take the front end

Simplex motor, right hand side and rear, and rear of radiator, oiling system and fan, this last on ball bearings and driven by a round belt. The pump and governor and distributor all one vertical shaft is a novel arrangement having many advantages. The motor is two cylinders vertical 2-cycle, water-cooled, 5½ ins. bore by 5 ins. stroke, and shows an average of about 45 horse power on the brake in long tests. The motor starts promptly almost always with the spark only, and behaves in every way exactly like a very good 4-cylinder 4-cycle engine. The absence of the cam-shaft and valves is a very strong point in favor of this form of motor which is of light weight for the power developed

shaft being simply extended to form the governor and distributor shaft, while the top of the pump column is enlarged in a semi-globular form and capped to house the governor and commutator. Two coils, one spare, and the throttle rocker are carried on the inside of the front-board. In this first car the front-board is fixed to the body-sills, but it is expected to be fixed to the chassis frame separate from the body, which can then be removed without breaking any connection.

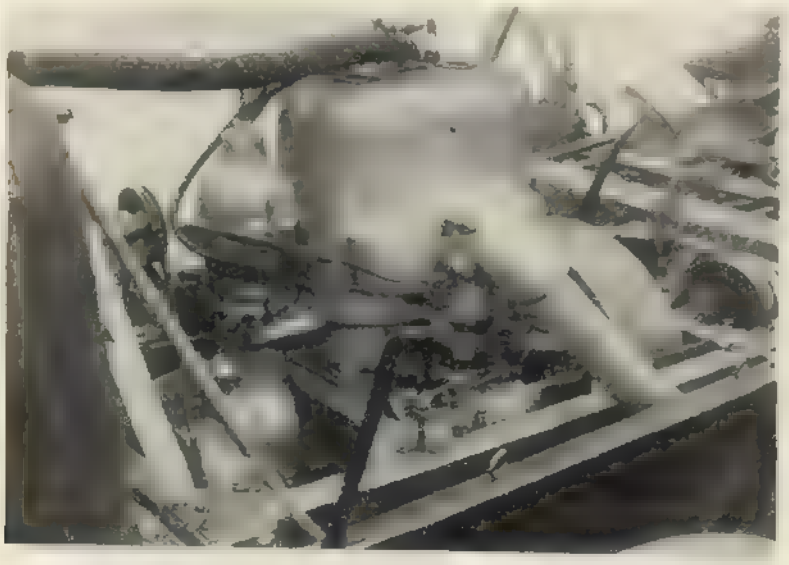
There is no water tank, the cooling system holding about five gallons of water, which never boils, and wastes slowly. The gasoline 16 gallon tank is under the front seat, left hand side.

of the clutch-spring; the rear end of the spring bears against a second ball bearing, adjusted by a split-nut, pinch-screw retained, threaded on the clutch-shaft. The clutch-casing is bolted to the rear fly-wheel face, the head being pierced to fit the rear-spring ball bearing, thus making the casing dust proof. There are thus three thin steel disks between five leather facings, the three very light steel disks squared on the clutch-shaft, and the grey-iron leather-faced disks being carried by the fly-wheel. A Hess-Bright ball bearing in the fly-wheel supports the front end of the clutch-shaft, which is enlarged and cut with three solid clutch-jaws engaging a similar clutch on the forward

end of the propeller shaft, being exteriorly retained by the bore of an emergency brake-drum. This clutch is described in detail because it is ideal in as much as it carries the least possible weight on the clutch-shaft, and so has the least weight of mass to resist sliding-gear engagement, and because it requires no lubrication, shows absolutely no wear after nearly three thousand miles of hard work, and has the indispensable requisite of an absolutely free disengagement.

THE GEAR SHIFT.

The inside hand lever works in two planes in a quadrant having a slot more than three times the lever thickness in the middle, and of free lever-width at opposite sides at the slot ends. This lever has the usual H-slot action, though the construction is modified so as to make it easier than the H-slot to handle.



Simplex motor, exhaust side and front. The column in front of the engine has the governor in the upper part, under a removable cover, with the governor below, [illegible] and screw-pump below all. The pump, distributor and governor are all [illegible] mitre gear driven from the crank shaft. The carburetor is seen just [illegible] described, as it is being changed. This [illegible] frame.

This speed change lever has six movements, two right and left, crosswise, and four forward and rear movements, two inside, and two outside, which are effective as follows: Of the inside movements, extreme forward engages the reverse gear, extreme rear gives low speed; the outside movements give intermediate speed at forward, and high speed at rear extreme positions, three forward speeds and a reverse. The gear change lever is latched in reversing only, the quadrant having only this one reverse notch; in all other gear-engagement positions the lever and linkage is self-retaining and upon making any gear-disengagement the change-lever returns to and is automatically retained in its neutral position, ready to instantly begin any of its four effective movements. It will be seen that the action of this important gear-shifting lever fully meets all requirements in every particular, and in connection with the small weight of the clutch members carried on the propeller shaft, and the absence of universal joints and the large ball bearings in the change-gear make it actually impossible to rub the gear-teeth ends against each other in engaging. No mishandling of the gear-shift is possible, and any gear change can be made at any time under any conditions with certainty, without rubbing the gear-teeth and without noise. This result mass-weight of revolving clutch material carried far from the centre. In the Simplex the total weight of parts applied to the 1⅝ ins. diameter solid propeller shaft is only about 3½ lbs., and this weight is mainly close to the shaft in the plate-disk square-eyed hubs. A subsequent issue of this periodical will contain drawings showing the actual Simplex construction in detail. These drawings are now in preparation.

BRAKES

The Simplex has one pedal only, which when pushed forward first disengages the clutch by a cam, and then holding the clutch free by a cam-dwell, continued forward pedal movement applies the intermediate emergency-brake.

The outside brake lever stands idle at extreme rear, latched to a ratchet-quadrant, free to move forward without unlatching, and first disengaging the clutch, and then continued forward movement applies the rear hub ordinary brakes, automatically ratchet retained until released by the grip bell-crank.

There is no inter-locking in the Simplex control, in the sense of restraining the movement of one control agent by the previous movement of another. The pedal and brake-lever both have double effects by continued

movements, but there is no true inter-locking.

THE CHASSIS FRAME.

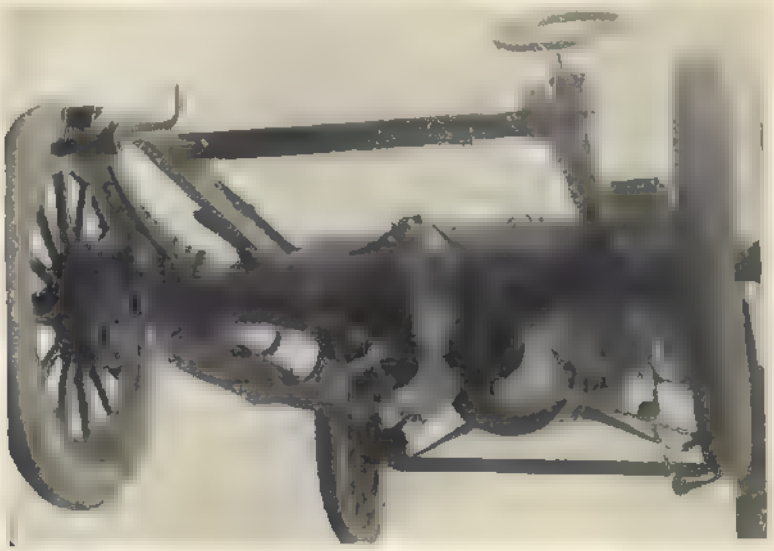
This is a pressed steel channel section construction, steel castings riveted into the rear ends to take the rear springends. Total length, 140 ins. This frame has only the body and radiator to carry, and is of course made correspondingly light, and has given sufficient clearance to permit all relative movements without touching the sub-frame. The general width of the chassis frame is 34 ins., narrowed in front to radiator width. With a full length sub-frame supporting the entire propulsion assemblage, the chassis frame loses much of its importance and is easily made a stable structure.

The rear-springs, half elliptics, are placed outside the chassis frame, and are 48 ins. long, 1¾ ins. wide, perched 26½ ins. from front end, 21½ from rear end, and have seven leaves. The single cross-front spring is 43 ins. long, 2¼ ins. wide, 7 leaves, 6¼ ins. rise and fall. The front spring top support is a globed part of a starting crank sleeve, which is supported on the sub-frame and projects forward through an opening in the radiator.

FRONT AXLE AND STEERING.

The front axle requires abundant resistance to turning under road resistance to front wheel advance. The Simplex axle places a triangular bracing, shoulder and nut retention near the axle ends, which reaches to about the middle of the chassis frame, where it terminates in a globe bearing, seated and capped in and to the under side of the sub-frame, making a perfect support for the front axle, and at the same time permitting a universal front axle movement of sufficient range. The axle has forged steel forks, with p... n hardened steel bearings to take the load, forks pinned and brazed into a steel tube 2¼ ins. diameter. The front wheels are carried on Timken roller bearings.

Steering is by a 16 in. hand-wheel, quadruple thread worm, steel, hardened and ground, and solid hard steel worm-gear sector, also ground, integral axle hardened and ground in eccentric Parsons bronze bushings, adjustment ratchet retained. One turn of the hand-wheel makes the full sweep of the front wheels, one-half turn to the right or left sharp turn. This construction is of the first order, and does all that can be done with a worm and gear sector and one turn of a 16 in. hand-wheel. The steering-post carries nothing but the steering shaft and wheel, as the spark-time is governor-regulated and the throttle is pedal-controlled.



Simplex Rear Axle. This is wholly of Parsons bronze. The lower part of a middle portion ... plates the change gear as well as the bevel pinion, bevel gear and ... ing gear, and takes flanged 1¼ ins. by ... of ... on ... the axle casing. ... ...

which was so generously treated in all important directions by its designer, and the workmanship is the very best

THE REAR AXLE.

The Parsons bronze middle member is divided horizontally and capped to make the change gear and bevel gear housing, and takes flanged tubular extensions on each side to complete the divided axle casing. The flanges are bolted to both of the casing members, but the cap can be removed and everything disassembled without disturbing anything except the pieces taken out. The axle casing sleeves are flanged and bracketed to take the sub-frame ends and brake-rockers. The wheels are on taper axle ends with keys and nuts, and the whole axle assemblage is as good as it can be made with the construction adopted. Parsons bronze is a more reliable material than any combination of castings of other material and steel tubes. The divided live axles are carried on Hess Bright ball bearings

The rear hub-drums are 11½x2 ins., internal bronze shoes hinged, fitted metal to metal, and expanded by rollers 180 degrees apart on short crank arms integral with the brake-rockers. This makes a rolling contact on the brake shoe ends, and avoids wear, as the rollers have a full circumference bearing on the rocker wrists. These brakes are operated by the outside hand-lever. A third brake-drum, 7 ins. diameter, having exterior, hinged, gun-metal bronze shoes, metal to metal, is placed on the propeller shaft, has the shoes applied by the single pedal, which first disengages the clutch and then holds the clutch free, while continued pedal movement to front applies this emergency-brake.

Simplex Control. The outside lever, ratchet retained, applies the rear hub brakes. The inside lever works the change gear. The small plunger pedal opens the muffler cut-out. The large pedal in the middle of the foot-board first disengages the clutch when pushed forward, and a cam-dwell on the pedal rocker holds the clutch free while continued pedal movement forward applies the emergency brake. The steering post carries nothing but the steering shaft and wheel. The spark time is regulated by the motor governor, and the throttle is handled by the horizontal pedal at right of steering post. The control is simple and easily handled.

BODY.

This is a tonneau, side doors, swinging to front or rear as ordered, with wide rear seats for three, and a capacious tool and spare-tire locker accessible through a long falling door in the back of the car. There is also a locker under the right side of the front seat for battery placing or other use.

ON THE ROAD.

The "Simplex" carried the writer on several occasions for short distances, always showing prompt starting and perfect control with speed and power to spare, but there was no opportunity to give time to careful observation of the all-round work of this remarkable car until November 14

The eager Simplex started at 2.00 P. M., E. J. Gulick driving, R. E. Maurer, mechanician, and Mr. W. E. Roe, a visiting mechanical engineer, and the writer, as passengers.

The Simplex is attracting great attention from experts, because it has a very carefully designed two-cycle motor of high power, and carries out three-point suspension in body support and straight line placing of its propulsion system very perfectly, and is already widely known as an advanced example of American motor car design

Before starting the fuel tank was filled so that the consumption could be known, and the Simplex hustled for Elkhart, only 13 miles away, over level dirt roads, hard and fairly smooth. No attempt was made to go fast, the pace touching 30 miles only occasionally, and Gulick stopping the motor for many horses to get their senses back again, but the Simplex was in a hurry, and when the road was clear the swift air cut like a knife.

From Elkhart the south road to Middlebury was selected because of diversity of surface, sandy roads deeply rutted and small, steep hills abounding, and the hard, narrow road, where best, being full of dips and bumps admirably adapted to showing the value of three-point car body support. Over this not much-used road the car was given about a third of her throttle opening, and sped on in silence except when the exhaust was opened to suit its rhythmic purring, which has a delightful uniformity. The deep ruts in sand made heavy, short hill-climbing very often, and the narrow, high pike gave plenty of side lurches in passing teams, so that all the movements and moods of the Simplex were fully exhibited. Another stop to thaw out was made on the return to Elkhart, and then the Simplex was headed for home over the smooth level dirt road, and the wintry air

Simplex car with one front wheel blocked up 13 in. above the road. Owing to the three-point chassis frame support this great elevation of one front wheel does not in the least affect the position of the body which remains horizontal. The same is true of the rear wheel does, of course, tip the body up side-wise, but does not set up any distortion of the full length independent sub-frame, supported on a globe joint in a bearing on top of the cross-wise front spring

rushed past the tearful faces of her passengers while the 50-mile clip ate up the little run. The whole distance covered was about 49½ miles, and it took exactly three gallons of gasoline to fill the tank full again. The car weighs 2,250 pounds, and had in this run about 700 pounds of passengers, making nearly 3,000 pounds total load. In no instance was anything like full power given to the Simplex, which has made a mile and 200 feet in one minute on a dirt road, with four passengers up.

The most notable sensation of this Simplex run, to the writer, was the prompt response in quickened pace to the slightest variation in throttle opening, and the most impressive sound was the music of the exhaust, which has a metallic quality of tone. It is perhaps as much the use of ball-bearings of large diameter as the 5½-inch pistons, which makes the Simplex dart forward like an arrow from a bow when the throttle is opened a trifle, or it may be that the straight line propulsion, having no universal joints, together with the freedom from twisting due to three-point support give even more friction reduction than the writer has supposed, but whatever the mechanical cause may be the prompt responsiveness of the Simplex to fuel increase is most marked. The hardened and ground steering worm and sector, with absolutely no lost motion, make this car obedient to the slightest movement of the steering wheel, and the globed support of the body at its middle in front gives swaying instead of bouncing, and does away with all need for spring checking. With the exhaust fully muffled the Simplex is almost absolutely silent, and as for power and speed, this car has far more of both than can ever be used on a public highway. The slightest increase of throttle opening makes the Simplex bound forward like a high mettled horse struck with a whip. The spark is governor controlled, leaving the throttle only to the driver's discretion, and this ensures the correct instant of ignition, and may be a large factor in the Simplex promptness of response to fuel increase, and undoubtedly has much to do with the very good fuel economy shown. Over 16 miles to the gallon of gasoline is very much better than 3,000 pounds total load cars commonly show.

Although the Simplex can take almost anything on the high gear, the perfect smoothness and absolute silence of the gear shift tempts the driver to change the gear speed for hard work, and this run showed the value of four forward speeds very decidedly, much of the bad Middlebury road being taken on the second gear. Perhaps a very quick shift from high to low might cause the gear teeth to rub, but it is quite correct to say that no ordinary handling can make the Simplex gear give forth the least murmur of complaint, and this fine new car, full of original features, and extremely well made in every particular, fully justifies Mr. Gulick's pride in his maiden motor-wagon production. The Simplex is one of the notable new cars for 1906, and will not be easily nor frequently outclassed in any year to come, though Gulick believes he has even better things in store

1906 Oldsmobiles

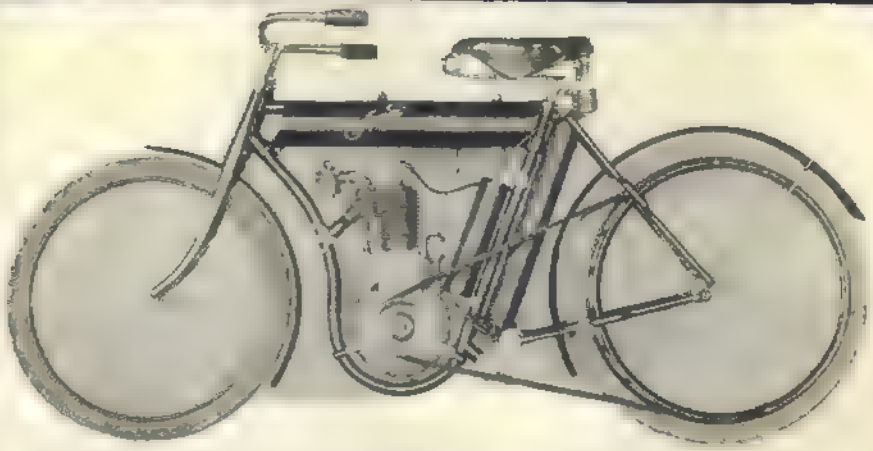
announce two new models for 1906, which are radically different from anything which they have previously made. One has a 2 cylinder, 2-cycle engine, and will list at $1200 Further particulars of this car are withheld, as it is not yet ready to be shown The other is a 4-cylinder, 4-cycle car which lists at $2250 and is rated at 24-26 H. P. The cylinders of this are cast in pairs, completely water-jacketed. It has a cone clutch, shaft drive, sliding gear transmission, giving three forward speeds and one reverse, speed change operated by a single lever. Ignition is by storage battery or magneto through four unit coils. It is equipped with 32x3½ in. tires, and wheels have Timken roller bearing axles. The old standard runabout, at $650, will also be continued

A state association of clubs has been formed in New Jersey under the name "Associated Automobile Clubs of New Jersey," and commenced with eight clubs as charter members, viz.: New Jersey Automobile and Motor Club, New Jersey Automobile Club, Hudson County Automobile Club, Automobile Club of New Jersey, Mercer County Automobile Club, Monmouth Automobile Club, Atlantic City Automobile Club and Cape May Automobile Club. The initiation fee for clubs is $10 and for members of clubs $1. Non-affiliated automobilists are charged an initiation fee of $2. The annual dues will be $2 per member.

LISTEN ! ?

SOMETHING DOING FOR 1906

ARMAC



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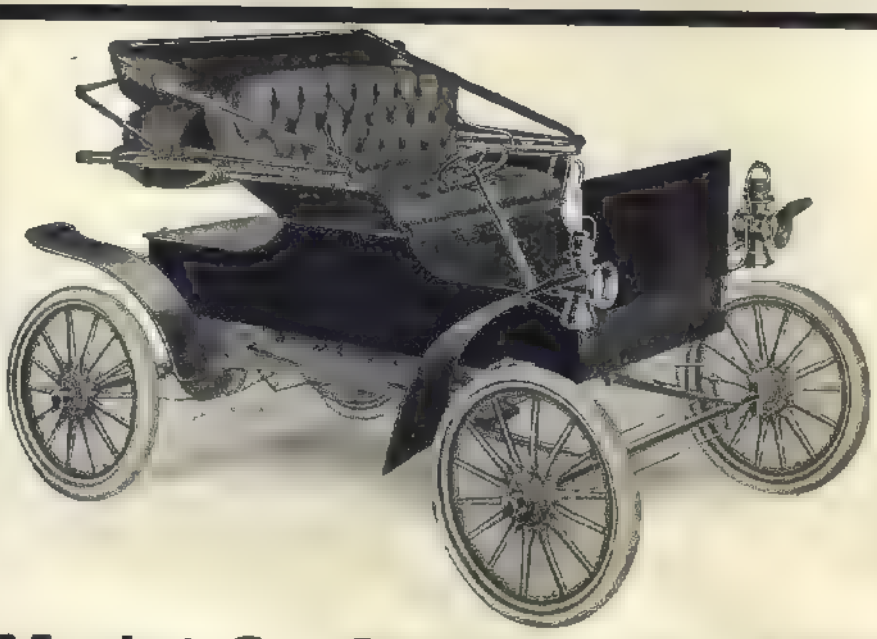

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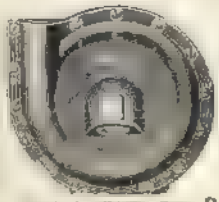
The 1906 Loomis Carburetor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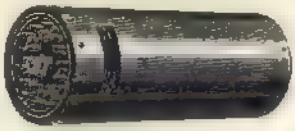
BEST of them all



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REFERENCE.
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MAIL THIS COUPON TO-DAY

SKINNER & SKINNER, Chicago. Ill. Send me, prepaid, one complete and up-to-date "SKINNER" Pump, with 4 feet of hose and handle. I may keep same 30 days and if at the end of that time I am perfectly satisfied with the pump and will remit $5.00 in full payment therefor, but if I do not like the pump I will return it to you within 30 days and you are to refund my money.

Name

Address

Stevens-Duryea

TOURING CAR - PRICE, $2500

DOES the work of a $3,500 car, and is neither too big nor too little. Has four cylinders, is twenty-horsepower, carries five passengers, and has side door tonneau. This is an up-to-date car, and is a **1906** pattern; **there will be no change in next year's model.**

Ask your auto agent for "The Twentieth Century Hustler" or SEND TO U'S FOR IT.

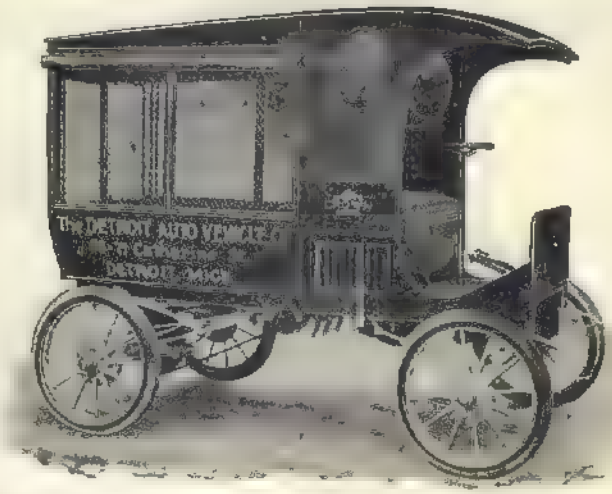
J. STEVENS ARMS & TOOL CO.

700 MAIN STREET

CHICOPEE FALLS, MASS., U. S. A.

Members Association Licensed Automobile Manufacturers

CROWN



MOTOR

2 Cycle, 2 Cylinder, 14 B. H. P.

Carrying Capacity, 1500 lbs.

Price, $1150

Without doubt the 2-cycle is the coming motor, and this is the only Delivery Car on the market driven by this style engine

Competitive demonstrations have proven that the Crown is the simplest, most durable and in every way the most satisfactory commercial vehicle yet produced. Inquiries pouring in from every direction.

Body made any style to suit purchaser, or if desired, price will be made on complete chassis without body Solid Tires unless otherwise specified.

Write for particulars.

Detroit Auto Vehicle Co. Detroit, Mich.

Cleveland

THE complete Chassis of the CLEVELAND car is manufactured by the Garford Company, whose experts have designed and built more high grade automobile parts and complete Chassis than any other concern in America, and the CLEVELAND is therefore the product of years of practical experience.

No other American car is made of such uniformly perfect and high grade material adapted to the purpose, or so thoroughly and intelligently assembled. There is no car on the American market that will stand up to its work so well or so long.

The [illegible] 1906 30-35 CLEVELAND is considered by experts to be the most perfect American car ever manufactured.
The cylinders are cast in pairs and have extra large water jackets.
The CLEVELAND [illegible] Bosch [illegible] magneto, with automatic make and break spark [illegible] mechanical [illegible] and [illegible] simple, fully efficient [illegible] does away with all jump spark troubles [illegible] spark plugs, and all complicated and unreliable [illegible] CLEVELAND [illegible] American car to use the Simms-Bosch low tension magneto ignition system which has been adopted and used [illegible] every high grade foreign car for the season of 1906.
The transmission [illegible] perfect. The shafts and gears are ground accurate to a [illegible] so that the gears [illegible] the transmission are high carbon steel, oil hardened, running smooth, quiet and long service. Three speeds forward and reverse are provided, [illegible] to give the proper hour on the road.
The CLEVELAND Carburetor is built after the [illegible] type and has a compressed air operating [illegible] by which an [illegible] can [illegible] the CLEVELAND [illegible] from the control.
The 1906 CLEVELAND weighs 2,200 lbs. 4 x 4 in. wheels, 2 in. tires.
The yearly guarantee bond goes with every CLEVELAND car and [illegible] in its entirety.

Price $3500.00.

Catalogue and full information on request

Mr. E. B. GALLAHER,
228-30 West 58th Street, New York
General Eastern Distributing Agent

CLEVELAND MOTOR CAR COMPANY
Dept. 2 CLEVELAND, OHIO

Stoddard-Dayton

The Model D is our 1906 Car

It is made for those automobile buyers who want something better than the general run of motor cars and yet who want to pay a fair but not an exorbitant price.

Contains every detail and every modern mechanical feature constituting an up-to-date automobile.
4 cylinder vertical motor. 4½x5 cylinders.
Sliding gear transmission of unique construction.
Clutch driven type rear axle.
Three internal expanding brakes.
Timken Roller Bearings in wheels, axle and transmission.
2100 pounds of 4" tires and many other valuable features.

A few high-class Agents wanted for unoccupied territory.

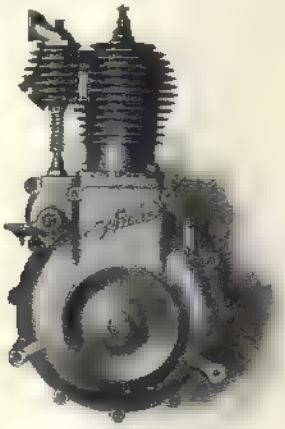
Advance Booklet ready—Catalogue later

DAYTON MOTOR CAR CO.
DAYTON, O.

Chicago, McDuffee Auto Co.
N. Y. Stoddard-Dayton Agency, 60th and Broadway.
Boston, Randliff Motor Car Co.
Indianapolis, F. L. Moore.

The 1906 Armac Motor Cycle

The Armac Motor Co., formerly of St. Paul, but now at 472 Carroll Ave., Chicago, Ill., have made some important changes in the nature of refinements of detail on their 1906 motor cycle. An important feature of the new model is the form of the tank, which is a part of the frame proper. It consists of a piece of heavy gage Shelby tubing, 4½ ins. in diameter, brazed in as a top bar and acting as tank for gasoline and oil. The tank, being copper plated on the inside, is not affected by the gasoline. Extra size filler caps are used both for oil and gasoline compartments.



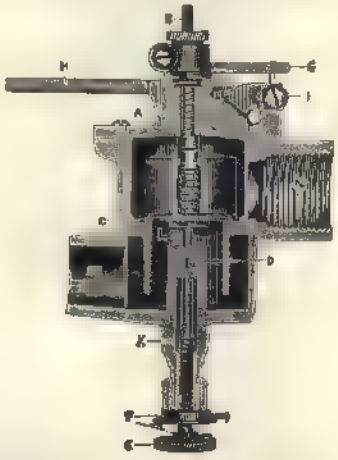
1906 Armac Motor

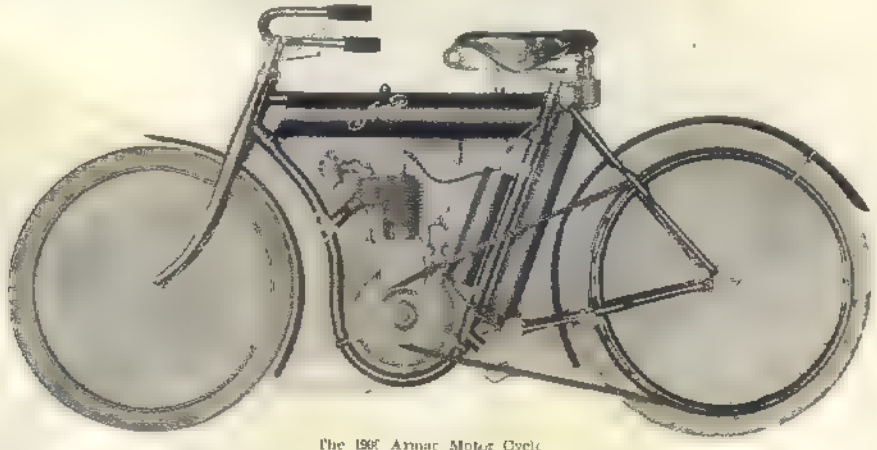
While the 1906 motor is reduced in weight, it develops full 3 H. P., and the one piece cylinder, with air passage cast between the explosion chamber and the exhaust chamber, assures better cooling qualities and sets the valves and springs away from the explosion chamber, where they keep much cooler. The new design muffler used is more efficient than the 1905 model.

A gasoline filter is placed in the pipe line of every machine, and the equipment is as follows: Extra wide mud guards front and rear; 2¼ ins. G. & J. motor cycle tires (2½ ins. fitted on special order); Person's Royal Motor Seat; Breeze carburetor; Sherwood combination oiler; one piece pulley rim and new improved V belt, like the English design used in all foreign countries; Corbin motor cycle coaster; two post handle bars, and a new and improved Bowden wire system of control, controlling both air throttle and igniter. Weight of this machine is 115 lbs.; wheel base 54 ins.; frame 21½ ins. high; 30½ to top of tank from ground.

The "Gavelek" Carburetor

After 5 years' study of the carburetor question, the inventor of the Gavelek carburetor placed it before the public fully convinced that it satisfactorily fulfills all the requirements of a perfect carburetor, and it is being manufactured and offered to the trade by Lustre Chemical Co., 1303 Michigan Ave., Chicago, Ill. The Gavelek carburetor feeds by pressure and no float is used. As there is no constant level to maintain, it matters not whether the car is on the level or at any angle from level. Gravity and the suction of the piston are alone utilized to operate the device. It is so constructed as to give a positive shut-off and cannot drip gasoline when the engine is not in motion. Prices are from $12 to $16.





The 1906 Armac Motor Cycle

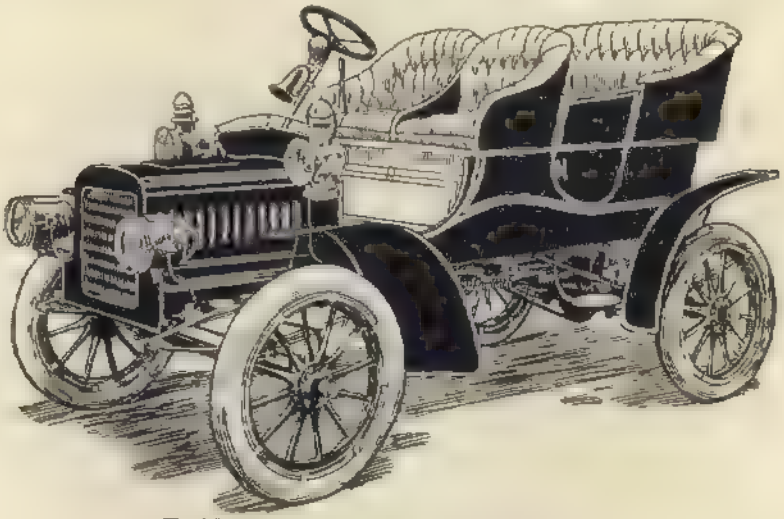
Weston-Mott 1906 Axles

The Weston-Mott Co., Utica, N. Y., manufacturers of automobile axles have recently brought out two new front axles. The cut shows No. 5 M which is the lighter of the two, and which is suitable for cars weighing from 1,500 to 2,000 lbs.

They have also designed another which is exactly the same in general appearance but heavier, and suitable for cars weighing from 2,000 to 2,500 lbs.

The Weston Mott No. 5 M. Front Axle

The company states that they have met with phenomenal success with their bevel drive rear axles, considering the difficulties usually mentioned in connection with the [illegible] They have not had to make one replacement on any of their No. 620 bevel drive rear axles. They have designed axles for 1906 both lighter and heavier than No. 620 but practically identically the same in design.



The "Leader" 16 H. P. Double Opposed Cylinder Car

The "Leader" Double Opposed Cylinder Car

Columbia Electric Co., 33 East Ohio St., Indianapolis, Indiana, with their factory at Mooresville, Indiana, have recently put on the market a car with double opposed cylinders, 16 H. P. water-cooled horizontal motor, lubricated by an "Essex" automatic oiler. Center chain drive is employed and a "Ball" planetary transmission gives two speeds forward and one reverse. The frame is of steel and is supported on full elliptic springs. A worm steering gear is used. A double band brake acts on the compensating gear case. Water and gasoline tanks are under the hood; capacity, 10 gallons gasoline, 4 gallons water. The rear axle is 1¼ ins. and runs on roller bearings. Tires are [illegible] ins. The wheel base is 84 ins., tread [illegible] ins. The body has a double side entrance [illegible] tonneau. The car is equipped with five lamps and a horn. It is fully guaranteed. Price is $1200.00.

Homer F. Livermore, 85-87 Pearl street, Boston, Mass., manufactures steel castings which are particularly adapted for small and intricate parts. They also furnish malleable iron brass, bronze and aluminum castings.

C. Hulburt & Co., 115 N. Second Street, Philadelphia, manufacture a line of automobile oils and are also offering a preparation called "Wonderine" for cleaning automobile bodies, upholstery, etc. It is effective on all varnished surfaces, leather or plush upholstery, glass, tapestry, patent leather, etc. It is not a polish, but a cleaner which does not harm, but leaves a varnished surface in a proper condition for effective polishing. It can be used in cold or warm water.

THE MARMON

"A Mechanical Masterpiece"

Front wheel and opposite rear wheel each raised over a foot

Master of All Roads

The Marmon is the only car that deserves this title because it is the only car that is naturally flexible enough to overcome the roughest road conditions.

It possesses over all roads a freedom from jar, jolt or vibration a very luxury of motion unknown in any other car.

More important still, no matter how rough the road, the running gear adjusts itself naturally to the ruts and bumps without subjecting the mechanism to binding or twisting strains. This is true of no other car, regardless of price or prestige.

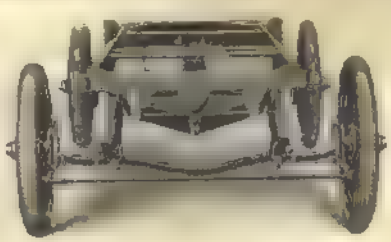
To determine how any other car would act under similar test, grip three legs of a chair securely to the floor and try to lift the remaining leg. Make some slight allowance in favor of the car because of its springs, and then charge against it the costly mechanism it carries and the great variety of roads it must travel at high speed. The entire mechanism is thus racked by twisting strains and ruinous friction in any such rigid construction, and not the least of the sufferers are the tires and the passengers.

The Marmon elasticity is supplemented by full elliptic springs, but is primarily due to a patented exclusive feature

Double Three-Point Suspension

Four cushions solid cast aluminum body on one frame, power plant on another frame, **each frame** suspended on three **pivotal** points. Raising or lowering of wheel does not affect the other wheels. No matter which wheels are raised, no matter how the two frames are tilted, the entire power plant and rear axle are **always** in perfect alignment. Straight and rigid shaft drive without any sort of flexible couplings, delivers a greater percentage of power to the wheels than is possible in any other scheme of transmission.

Double Three Point Suspension is not to be confused with its parody, Three-Point Support. It is not to be found in any other car, and any one who has ever ridden in a Marmon over a rough road will not hesitate to say that it is not only the greatest talking point but the greatest performing point ever achieved in automobile construction.



Normal Position.

Front Wheel Raised Over a Foot. Body Level

THE MARMON

"A Mechanical Masterpiece"

Half Rear View

Half Front View

The One Unfailing Oiling System
The One Perfect Air-Cooled Motor

The Marmon lubrication system is superior to splash, gravity or any other known oiling plan. Starting and stopping with the starting and stopping of the motor, a **constant** and **uniform** flow of oil is forced through the hollow crank shaft, solid forging, drilled **directly into** all the main engine bearings, cams and piston pin bearings. Has no adjustments, no uncertainties; needs almost no attention. Has no equal for economy. One gallon of lubricating oil runs the Marmon from 900 to 1000 miles.

Four cylinder motor, perfectly air-cooled. Never sticks or overheats; very powerful, quiet and smooth running. Improved spark and throttle control on steering wheel.

In general excellence of construction, we believe we are justified in saying that the Marmon is in a class by itself.

It is made by a company that has for **over fifty years** maintained a high reputation for the excellence of its mechanical products.

We build the car complete, all of it excepting the tires, wheels, springs, ignition, etc. We make our castings from aluminum, brass and bronze; do all machine work, all sheet metal work including frames; build our bodies, trim and finish them, all of which results in consistent construction and of a grade excelled by no other manufacturer and equaled by few.

The result is that we build, not many cars, but excellent cars, every one of them "A Mechanical Masterpiece."

To anyone who really seeks the best, the exclusive mechanical beauty, superb workmanship, and stylish appearance of the Marmon need little more than an introduction.

Our Book at No. 5 contains a complete description. Yours for the asking.

NORDYKE & MARMON COMPANY

(ESTABLISHED 1851)

Indianapolis, Indiana

Member American Motor Car Manufacturers' Association

The 1906 Merkel Motor Cycle

The Merkel Motor Co., Milwaukee, Wis., will put out for 1906 a motor cycle similar to this year's model, but with a few important changes. The carburetor throttle is operated by the grip control on the handle bar. This model will be higher powered and higher priced than the 1905 machine. The dimensions of the motor are 3¼ ins. bore x 3 ins. stroke; the cylinder and cylinder head are cast integral, with the inlet and exhaust valves placed at an angle to the head. Both valves are operated mechanically, being actuated from a single cam and rod. Hess-Bright ball bearings are used throughout. The transmission is through bevel gears.

The 1906 "Wagner" Motor Cycle

In the 1906 Wagner motor cycle, made by the Wagner Motor Cycle Co., St. Paul, Minn., are retained the well known Wagner features, diamond loop frame, twin forks and the V-shaped pulley and belt. The belt adjuster has been improved, so that it is now possible to vary the tension on the belt without dismounting. The idler is ball bearing.

The motor is designed to give the greatest amount of speed and power with the least possible weight, and is the result of 6 years' practical experience on the part of the Wagner Company. The bearings are of the best Royal motor seat; Fauber one-piece crank hanger. The gasoline tank holds 5 quarts and the oil tank 1 quart.

The Year Book of the Trade

The annual January "Buyers' Guide" issue of the Journal has justly earned the title of the "Year Book of the Trade" because of the fact that it is a complete compendium of the market for the coming year. All the prominent concerns in the trade appreciate this and reserve their complete announcements for that issue. Any dealer, jobber, manufacturer or individual automobile owner who is interested in buying new cars, parts or accessories during the year cannot afford to miss having the January "Buyers' Guide Special" at hand to refer to when anything is wanted.

This issue contains an unprecedented amount of information on the new things offered for the 1906 season, and the main feature of the book is a complete classified directory of the entire trade arranged in compact form as a buyers' reference. Single copies of this issue are 50c. each, but it is included in a regular yearly subscription at $1.00. Subscription blank will be found on page 333.

The 1906 "Wagner" Motor Cycle

bronze, made extra wide to insure long life. The gears used in the motor are integral with the shafts that carry them and tempered; thus the chance for gears to work loose is done away with. The carburetor is very simple in construction, and with the intake pipe is cast in one piece. The method of fastening to the inlet valve is by lock nut fitted with right and left threads. The grip control is operated by the right hand grip alone, and controls the spark advance, the electrical circuit and exhaust lift in one movement.

The wheel base is 1 inch longer than that of the 1905 model, being now 53 inches. The rear pulley is attached by 12 lugs and is of one piece construction. The equipment includes Corbin sulky front hub, Corbin or Morrow motor cycle rear hub, 2¼ inch Fisk single tube tires, or G. & J. clinchers, Mesinger saddle with spring seat post, or Persons

C. W. Blackman, formerly connected with the "Horseless Age," has resigned his position to take an interest in the Parish & Bingham Co. Cleveland, Ohio, of which he was appointed manager of sales.

Mohler & De Gress, 330 Webster Avenue, Long Island City, N. Y., have sold their plant to F. A. Seitz, who will continue the business under the style of F. A. Seitz & Co., successors to Mohler & De Gress. This concern makes gasoline engines and parts for automobile repairs.

"Ever Ready" Starter, described in our last issue, are located at 304 Hudson St., instead of 307, as was stated. This company, which is controlled by officers of the American Electrical Novelty and Mfg. Co. will probably distribute the "Ever Ready" products to the automobile trade.

The 1906 Auto-Bi

The 1906 Auto-Bi, made by the Thomas Auto-Bi Co., 1443 Niagara St., Buffalo, N. Y., contains many improvements. The entire control of the machine is accomplished by the use of an adjustable grip on the handle bar which is worked with a friction cone, so that the grip will stay at whatever point it is placed without attention from the rider, thus doing away with the tiring effect produced on the wrists by a loose control grip. Movement to controller is done by two bell cranks

Combined fuel, battery and oil receptacle of 1906 Thomas Auto-Bi.

with connecting rods, using the simple and positive ball joint, of novel construction, designed especially for the Auto-Bi. There is absolutely no variation in speed, due to turning sharp corners, when machine is in motion.

Battery box and gasoline tank are combined. The tank holds 6 quarts and is made very strong, in cylindrical form, with torpedo point. The gasoline needle point is located in the tank, dispensing with an intermediate valve.

Engine of the 1906 Thomas Auto-Bi

Loose cells and broken wire connections are obviated, as the No. 6 dry cells are packed in wood, without pasteboard covering, and flexible wire connections are used. The cylinder and cylinder head are cast in one piece. A Thomas Buffalo Mixer is used, and is fastened direct to the motor head. The use of this carburetor makes it possible to run this machine in the coldest weather equally as well as in the summer. Bearings used are of phosphor bronze throughout, with extra large bearing surfaces, and with the use of hardened steel shafts, makes them very durable. Crank case bolts direct to frame, of which it is an integral part, and the lower case can be removed at any time for inspection. Timing gears can be inspected by removing one nut. The exhaust valve lever lift is placed on the outside, making it easily accessible. The Ives Spring Seat Post is used, and has an extra long spring, giving practically the same result as the spring frame without the extra number of parts. The spring idler used is automatic, ball bearing, with large spring adjustment, and is so constructed that the least possible strain is brought to bear on the belt. It being seldom necessary to change the adjustment, this idler is consistent with actual needs. The connecting rod is of phosphor bronze, and is made adjustable to take up possible wear.

This machine is 3 H. P., with 2⅞ in. bore, 3¼ stroke. The wheel has extra heavy spokes, with special wooden rim, and 1¾ and 2-in. Goodrich, G & J. or Dunlap tires. A Corbin motorcycle coaster brake hub is used.

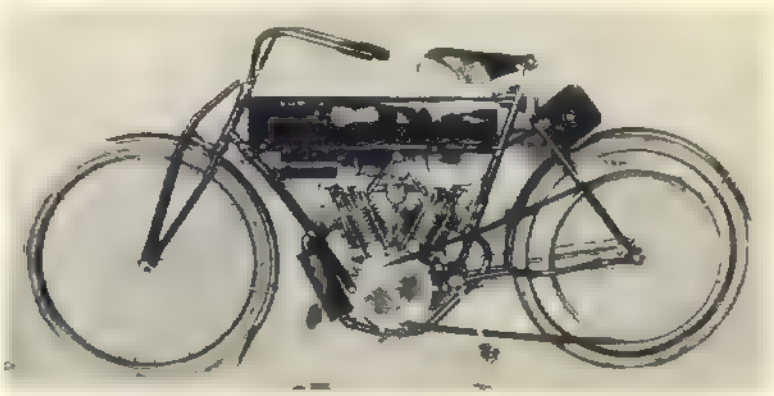
New Atwater Kent Spark Generator

The Atwater Kent Mfg. Wks, 112 N. 6th Street, Philadelphia, have perfected a new spark generator which greatly simplifies the ignition system, concentrating as it does a number of functions in one apparatus. It is claimed by the manufacturers that this device does away with continual adjustments, commutator troubles, vibrator difficulties, and is economical of battery current. With it, a single set of Columbia dry cells gives sufficient current to ignite a 4-cylinder engine. A remarkable feature attributed to it is that it uses less current on low speed than on high. It makes one good, large spark for each impulse of the engine, which is constant at all speeds. This device makes, times and distributes the spark. It has been thoroughly tested, several having been run continuously in their factory for a long time and one having been used on a Packard 4-cylinder truck which has run over 800 miles to date without a single miss.

The Cleveland Dealers' Automobile Club, Ohio, will this year promote the annual show instead of the Cleveland Automobile Club. It will be held in the Central Armory, February 18 to 25. George Collister has been engaged as manager.

The Maxwell-Briscoe Motor Co., Tarrytown, N. Y., has recently leased the large brick structures, formerly occupied by the Hope Thread Company, at Pawtucket, R. I. The Maxwell-Briscoe Company have taken possession and hope to have it in operation as a branch factory before Christmas. At the start about 200 workmen will be employed. The Maxwell Co. will make all their own bodies.

The Auto Directories Co., 108 Fulton St., New York, have bought out a number of other concerns making a business of compiling directories in the automobile trade, and has consolidated them all under the style, Motor Directories Co. This company publishes lists of automobile dealers and owners weekly.



The 2-Cylinder Curtiss 1906 Motor Cycle.

The Curtiss 1906 Motor Cycle

The 1906 models of the recently incorporated G. H. Curtiss Mfg. Co., of Hammondsport, N. Y., will consist of new and improved single and double cylinder motor cycles, 2½ and 5 H. P., respectively. A new side car made by them is described in another part of this issue of the Journal

The engines have undergone considerable change. The crank case is narrower, but the flywheels are of a larger diameter, giving more balance with less weight than heretofore. The double cylinder engine has also been greatly lightened and simplified in other respects. One notable feature is that the exhaust valves of both cylinders are operated from a single cam and gear. The engine weighs 55 lbs. and develops 5 H. P. The single cylinder weighs 40 lbs. and develops 2½ H. P.

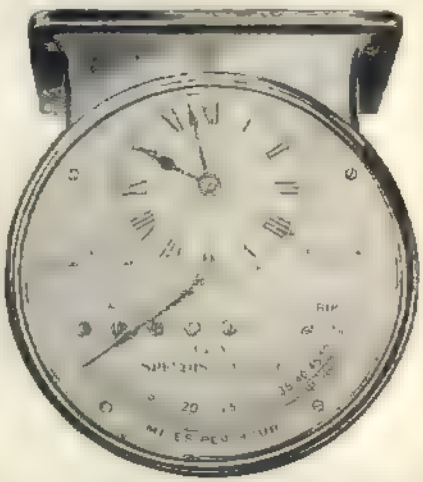
Frame height is 22 ins.; wheel base, 56 ins.; wheels, 28 ins.; tires, G. & J., 2½ ins.; saddle, Person's Royal Motor Seat; handle bars 22 ins wide, reinforced, fastened by both expander and compression clamp; mud guards front and rear; regular finish black; grip control, muffler cutout; oil capacity, one qt.; gasoline capacity, two gallons.

This machine is extremely silent running, and has a great range of speed, being capable of a mile a minute or better. The single cylinder model is of the same general construction and equipment, but is fitted regularly with 2 in. G. & J. tires

The 1906 "Speedistimeter"

The Lea "Speedistimeter," which was brought out early in 1905, has been improved for 1906 by the substitution of a Chelsea high grade clock movement for the movement before used. The works only require winding every eight days. The first instruments produced contained clocks of average quality, but it was the desire of the manufacturer to have nothing about the Lea Speedistimeter that was not essentially the very best in every feature, and it became necessary to adopt a clock movement which was recognized standard among all authorities on high grade clocks. The Chelsea movement used in this instrument is the same as is retailed alone for nearly half of the price of the Lea Speedistimeter when separately cased, and the standard of the instrument as a whole may be based upon the well-recognized reputation which the Chelsea clock now occupies.

The special feature of the Lea Speedistimeter, which is covered by letters patent, is the attachment fixtures which have not here-



New Dial and Indicator of Lea "Speedistimeter"

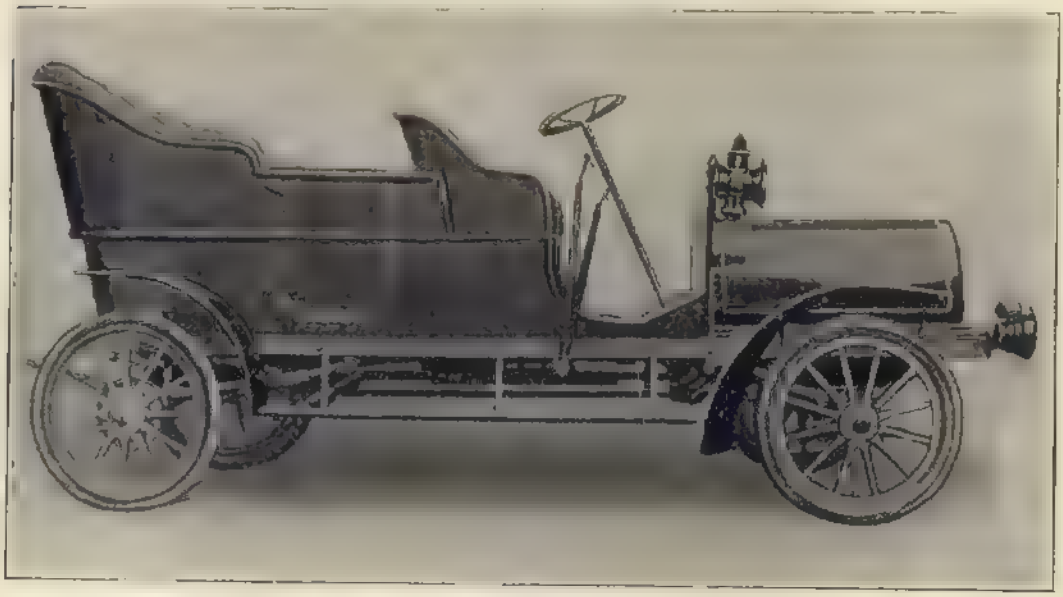
tofore been illustrated in these columns. The attaching fixtures are unique and universal, being applicable to any make of car without change. Should any foreign substance get between the gear and the pinion, the pinion is simply thrown around on one of the ball joints and no harm can be done. This instrument is made by the Motor Car Specialty Co. of Trenton, N. J., and Wm. S. Jones, 112 North Broad St., Phila., is sole selling agent.

The most important issue of the year is the January "Buyers' Guide Special" issue of the Cycle and Automobile Trade Journal. It will contain over 700 pages, including a complete classified directory of the trade. Single copies will sell for 50 cents, but it is included without extra charge in a year's subscription at $1.00. Subscription blank on page 333.

The "Eagle" Air-Cooled Cars

Eagle Automobile Co., Rahway, N. J., are making an air-cooled touring car with side entrance, listing at $1400. This car is equipped with the engine invented and formerly made by H. J. Muntz, of Poughkeepsie, N

being employed in the crank case. The carburetor is of the automatic type, giving a proper mixture at all speeds, and the charge is jump spark ignited. Spark and throttle are controlled from the steering post. A three-speed transmission gear is used, it being a combination of the sliding gear and



The "Eagle" Air-cooled Touring Car. Air-cooled. Price $1400.

Y. [illegible] cylinders with mechanically operated [illegible] and gives 20-24 H. P. The cylinders are air cooled by means of steel flanges cast into the cylinder. The flanges are each 1/2-inch thick, 1⅜-inch wide and placed 3/16-inch apart. This method of attaching the flange gives a perfect contact with the cylinder and effective radiation of the heat. The cylinders are 4x4½ in. A positive feed oiler is used, splash lubrication

planetary type. Motor and transmission are connected by a universal joint. Drive to the rear axle is by chain and the machine is geared for a speed of 40 miles per hour.

The frame is of channel steel, including sub-frame and cross members. Front springs

Engine of the "Eagle" Air-cooled Car

are half elliptics, 40x1¾ in., and the rear ones full elliptics same length and width of leaf. Wheel base is 58x110 in., and the wheels are

Continued on Page 116

Hunter-Weckler Motor Boats

The success of the "Erin" during the past season calls attention to the motor boats turned out by Hunter-Weckler Motor Boat Co., of McHenry, Ill., as this is one of their stock types. The "Erin" won the Rudder Cup in the Chicago-Mackinac race, July 29, making the 322-mile run in 44 hours, 52 minutes against a head wind all the way. This launch is fitted with folding lavatory, wardrobes, ice box, gallery, etc., and is finished in quartered oak.

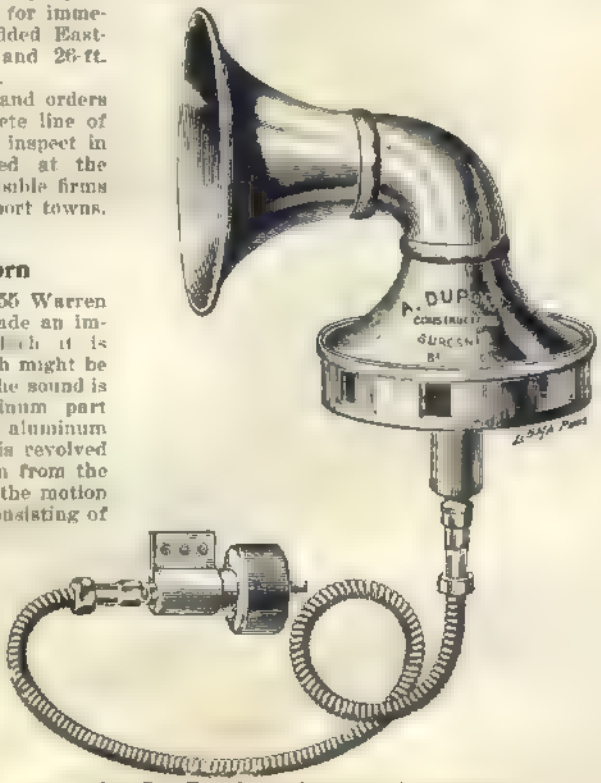
The "Erin," a stock boat by Hunter-Weckler Co., which won the "Rudder" Cup in the Chicago Mackinac race July 29.

The different size outfits they carry on stock at all times are a 14-ft. dinghy, 17, 18, 21, 25, 26, 32, 35 and 40-ft. launches, in the open, trunk or glass cabins. They have also a full line of paddle wheel launches on stock, and are perhaps the only company in this country carrying these outfits for immediate delivery. They have also added Eastern dories to their list, and 21 and 26-ft. semi-racers, with guaranteed speed.

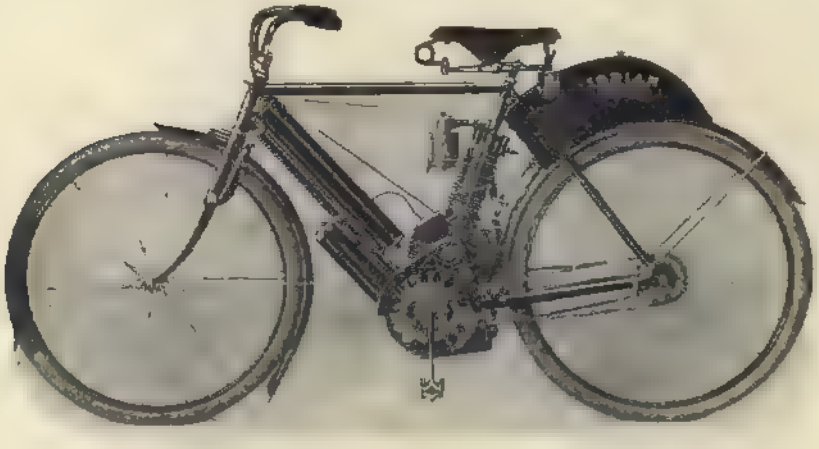
They are now working on stock and orders for 1906 delivery, having a complete line of samples on hand for customers to inspect in their new building just completed at the factory, and are looking for responsible firms to represent them in river and seaport towns.

Imported Siren Boat Horn

The Motor Car Equipment Co., 56 Warren St., New York, are offering the trade an imported horn for motor boats which it is claimed produces a loud noise which might be likened to the roar of a lioness. The sound is produced by means of an aluminum part which revolves on steel balls. The aluminum part is made of a hard alloy and is revolved by means of a flexible shaft driven from the flywheel of the engine. To obtain the motion from the flywheel a small pulley, consisting of leather disks held between two steel disks, is brought into contact with the flywheel by means of a pedal. The pulley is keyed to a pin extending from a brass piece which is bolted to the boat, and this pin is connected to the flexible steel rod which is contained in a nickel steel tube, this tube in turn being enclosed in a flexible brass casing. Thus the flexible driving shaft is thoroughly protected from dust. The small pulley is ball bearing. The aluminum section wherein the noise is produced is provided with oblique apertures, and will work in either direction, so that the direction of car's motion will have no effect on the workings of this noise producer. This horn is about regulation size, and the working parts are protected from dust by means of a wire gauze fitted in the mouth of the bell.



Siren Boat Horn, imported by Motor Car Equipment Co.



Indian Motocycle

THE INDIAN MOTOCYCLE is the acknowledged standard. It was awarded the highest honors at the 1904 St. Louis World's Fair, second award going to a foreign make. In appearance and efficiency the INDIAN holds first rank over ALL Motocycles, both foreign and domestic. Its long string of consistent victories in every class of Contest during the past three years prove every claim made of its Power, Speed, Strength, Simplicity, Durability and Reliability. It won the great Endurance Contests of 1902, 1903 and 1904. It has no equal in Hill Climbing Contests. Although designed primarily as a practical ROAD machine for every day use, the INDIAN has no mean speed, and it is only surpassed in this feature by the high powered and most costly Automobiles. It will run slow as well as fast. It is controlled entirely by a *twist of the wrist*, the rider almost unconsciously directing its every movement, with a range of speed from six to forty miles an hour. It "picks up" instantly and can be stopped quicker than an ordinary bicycle.

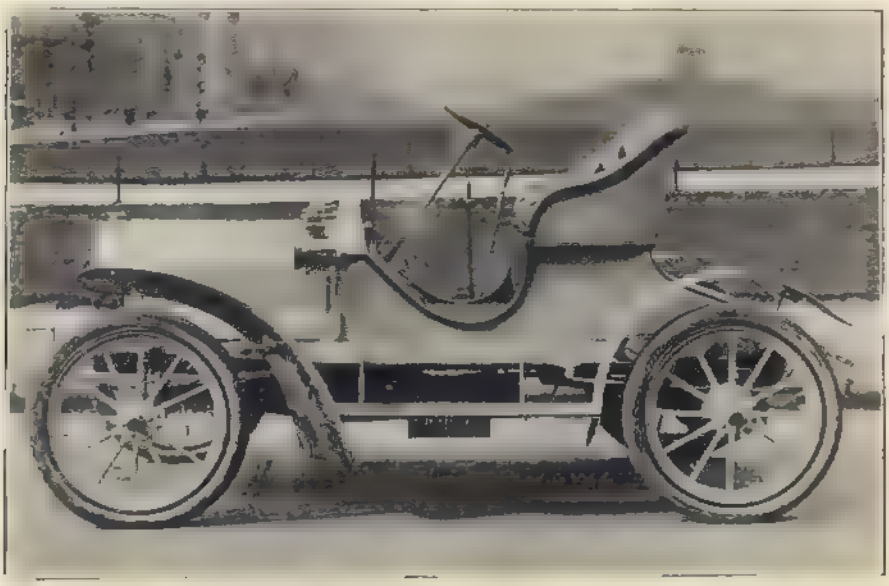
The equipment of the INDIAN throughout is the *best that can be made*. The introduction of the cushion fork and the use of the genuine Brooks Motocycle Saddle, making it as comfortable as a Pullman coach. Its Grip Control is different from all others. It has power sufficient to carry double, and for this purpose either tandem or fore-carriage attachments are furnished as extras.

Note carefully the perfect mechanical construction of the INDIAN. It is a handsome machine of correct proportions, not a bulky, freakish conglomeration of clumsily assembled and ill working "experiments." The INDIAN of to-day is practically the same machine that it was three years ago, proving that it was *right* from the start. It is the cheapest machine because it is the best. It is worth every dollar that it costs. Old, second-hand INDIANS, when they can be bought, cost more than some Motocycles sell for when new. It is because they are worth more. Wise people found this out some time ago. When you buy an INDIAN you know that you have the best that money can buy, you are proud of it and you don't have to make excuses. There is but ONE GENUINE INDIAN, and that always bears the stamp of the inventors and manufacturers, thus: "Hedstrom motor, Hendee Mfg. Co., Springfield, Mass." No other Motocycle is an INDIAN. Make certain on this point.

HENDEE MFG. CO., Springfield, Mass.

The "Merkel" 4-Cylinder Runabout

Merkel Motor Co., Milwaukee, Wis., have brought out a 4-cylinder gasoline runabout. The wheel base is 80 ins., and the wheels, which are of the usual 12 spoke artillery pattern, are 32 ins. in diameter, fitted with 3 in. detachable tires. The frame is of pressed steel, of the usual channel section, tapering toward both ends to receive the spring hangers. Both front and rear springs are semi-elliptic, and in both the usual practice is reversed, in that the shackles are at the outer or spring hanger ends, while the stationary eye-bolt supports are at the inner



The "Merkel" 4-cylinder gasoline Runabout.

or frame bracket ends. The front axle is tubular, with the usual depression in the middle, and is fitted with Lemoine type steering knuckles. The steering gear connections are of the conventional arrangement, with the drag link ahead of the front axle. A rod connects the two forward ends of the front spring hangers, and at its middle serves to support a bearing block for the starting crank shaft.

The 4-cylinder, vertical engine, which is supplied in both the air and water cooled patterns, is rated at 14-16 brake H. P. in the water cooled style, which is the regular equipment in the runabout. It is of 3½ ins. bore and stroke and is said to be capable of speeds from 150 to 2500 r. p. m. It weighs complete, including carburetor and commutator, 235 lbs. The crank case is made of nickel-aluminum alloy and is cast in two sections, split on the horizontal centre line of the crank shaft. The upper half carries the six arms with which it is supported directly from the side bars of sub-frame. The five crank shaft bearings are also held in this upper half, so that the lower half may be removed without disturbing any of the parts.

The crank shaft is a hammered steel forging with the cranks set at 180 degrees and with all bearing surfaces turned and ground, the entire shaft being finished and polished. The connecting rods are also drop steel forgings. Their crank pin bearings are bushed with Phoenix metal, while their wrist pin bearings are upon hardened mild steel tubular wrist pins.

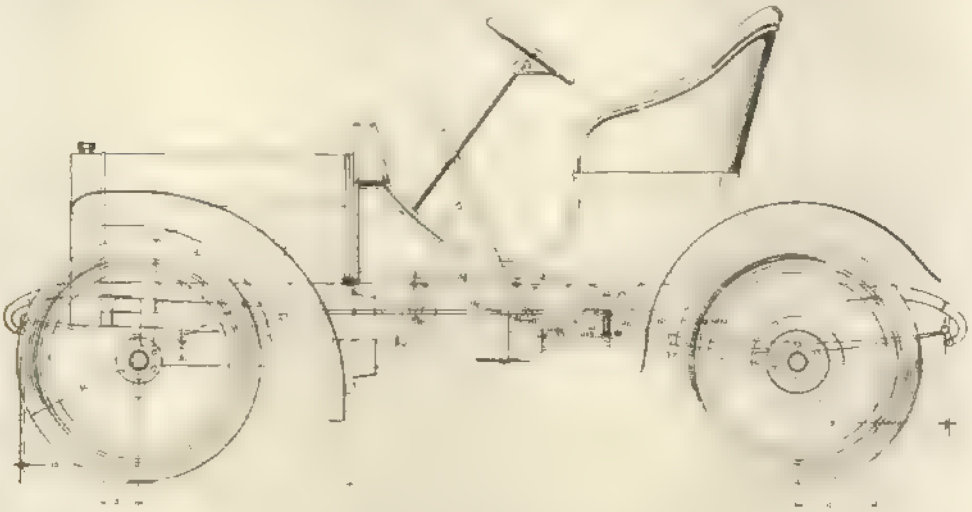
The cylinders are cast separately, with the heads integral, and hemispherical in shape. They are ground after machining, and the pistons and rings are also machined, ground and balanced, each piston carrying two pairs of rings ground on three faces. The exhaust valves are on one side of the cylinders and the inlet valves on the other side, and are in both instances inclined at an angle of 45 degrees. All are mechanically operated and interchangeable, and all open directly into the combustion chamber. The valves are operated from shafts on either side of the motor, driven by enclosed speed reduction gears, which actuate the valves through the medium of eccentrics and vertical eccentral rods, with cam on the upper ends. The cam rods move within roller guides at the top. All of these parts are steel forgings, hardened and ground.

The water circulation is by a gear pump, driven directly from the exhaust valve actuating secondary shaft. The radiator is of a vertical ribbed tubular pattern combined with the tank, and, in accordance with modern practice, is so bracketed upon the main frame that it hangs well below the side bars. The carburetor is of the conventional float-feed, self-compensating pattern, with spherical mixing chamber above the spray nozzle. A portion of the exhaust is shunted into the carburetor jacket to keep it at a uniform temperature. The fuel is fed to the inlet chamber through a simple T-pipe line. The ignition is by jump spark, with a La

Coste timer, mounted on a vertical shaft at the flywheel end of the motor and driven by mitre gears from the inlet valve-actuating secondary shaft. The spark plugs are in the centre of the cylinder head. The motor is lubricated by the splash system, with a mechanical oil pump for feeding oil into the crank case, which is provided with a glass gauge indicating the amount of oil in the case. The lower half of the crank case is provided with partitions to prevent the oil from accumulating in one end of the case when the car is running on an incline.

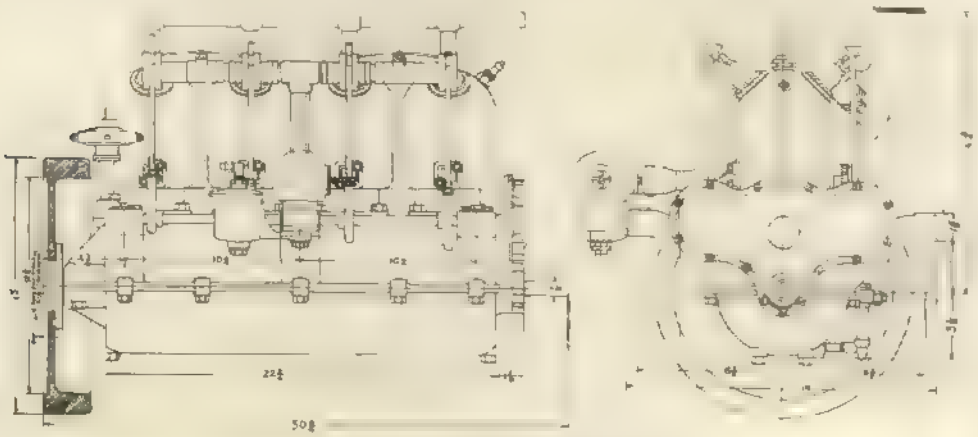
The transmission is through a conical clutch, self-contained within the flywheel to prevent or avoid end thrust, to a sliding gear, speed changing set furnishing three speeds forward and a reverse drive. The final drive is by a universally-jointed propeller shaft and bevel gears to the live rear axle, which is of the floating type. There is the usual brake on the transmission, and two internal brakes on the rear wheels.

The body includes a Mercedes pattern bonnet with a curved recessed dash, inclined footboard, divided seat, sloping rear deck, extensive mud guards and running board connecting the front and rear and front guards. The engine, clutch and transmission are protected from dirt, dust and other elements by a permanent fibre pan attached to the frame. The complete weight of the car, fully equipped, is 1450 lbs.



Side elevation "Merkel" Runabout Chassis.

Olds Motor Works and the Reo Motor Car Co., of Lansing, Mich., have each subscribed $500 toward the building of a macadam road between that city and the State Agricultural College.



The "Merkel" 4-cylinder Water-cooled Engine.

Caps Bros., of Kansas City, manufacturers of motor cars, have incorporated the Kansas City Motor Car Co., and considerably increased their facilities. Thirty acres of ground have been purchased and two 2-story, 50x150 ft. buildings are being erected.

"Michigan" Steel Hull Motor Boats

Michigan Steel Motor Boat Co., 1250-1270 Jefferson Ave., Detroit, Mich., include in their 1906 line of steel hull motor boats the two models which are here shown. One of these is exceptionally good value, being a 16-ft. craft which is sold for $96. The dimensions of this boat are given beneath the cut. The hull is made of steel, and the beautifully curved lines of "Michigan" steel hulls have made them famous. The material used in the planking is 24 gauge galvanized steel, cut in strips and lock seamed by a patent process. There are four thicknesses of steel on each seam. The ribs are fastened to the hull of the boat at every seam. The head of the nail that fastens the rib is under the first thickness of steel, and the th[illegible] running thicknesses are grooved down over the first thickness, making it impossible for the nail

Michigan 16-ft. motor launch, length over all 16 ft., draught, 12 in.; beam, 4 ft. 6 in.; height of bow, 2 ft. 8 in.; height of stern, 2 ft. 11 in., height amidships [illegible]; length of cock-pit 10 ft. 3 in.; width [illegible], 3 ft. 6½ in.; length of bow-deck, [illegible]; stern deck, 4 ft.; keel 1⅝x3 in.; keel-strakes, ⅝x3¾ in.; filler-strakes, ⅝x3¾ in.; [illegible] lbs.

to work loose from the hull of the boat or the rib. The seams are thoroughly soldered and tested. The woodwork is of selected oak throughout, excepting seats, bulkheads, floor and decks, which are of cypress. The keelson, keel and sheer strakes are all of solid oak.

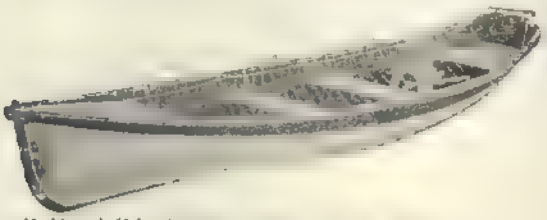
The seats are arranged crosswise in this boat, there being four of them, giving room for eight people. The boat is equipped with air chambers, one in the bow, two in the stern and one under each seat. The air chambers under the seats are concealed in tank boxes and are closed from view in bow and stern by bulkheads. The ribs are of the best white oak, ⅞ in. x ½ in., 3 ins. apart. All the hardware used is heavily galvanized. The boat is fitted with a 1 H. P., 2-cycle, jump spark, reversible engine, with a solid propeller.

The 18-ft. launch also has a galvanized steel hull. The woodwork used in the construction of this boat is of selected white oak throughout, with the exception of the finish in the cockpit and decks. The cockpit is finished in cypress, the decks ⅝ cypress covered with No. 8 duck set in white lead. The ribs are of the best selected white oak, ⅞ x ½ in., 3 ins. apart. The coaming of the cockpit is 4½ ins. high and ⅝ in. thick; material, white oak. The keelson, keel, sheer strakes and fillers are all of solid oak.

All of the hardware used in the construction of this boat is heavily galvanized. The boat is fitted with air chambers, three in the bow and one in the stern. The tanks are enclosed from view by bulkheads, both in bow and stern. The gasoline tank has a capacity of 15 gallons. The boat is fitted with a 2 H. P., 2-cycle, jump spark, reversible engine, and with a solid propeller.

The seats are arranged along each side of the cockpit, from bow to stern; length of each seat, 8 ft.; width, 10½ ins.

The Michigan Steel Boat Co. use in their boats a two-cycle reversible engine which they selected after severe and long continued tests. It is of simple construction and easy to operate. Being reversible, a solid propeller is used. The reversing is accomplished by merely turning the speed controlling lever in the direction opposite to that in which the engine is running. Another important feature is that it is practically noiseless, for, in addition to being fitted with a muffler, it has an expansion chamber which deadens the noise almost completely. The speed of this



Michigan 18-ft. [illegible] launch, [illegible] in., draught, 8 in., [illegible] of stem, 3 ft. [illegible] keel 1⅝x3 in., sheer-strakes, [illegible] weight, 400 lbs.

engine can be graduated from trolling to fast running. It is symmetrical and well balanced throughout, the weight of the fly wheel and other parts having been carefully determined. The cylinder and head are cast in one piece, obviating any chance of leakage.

The centre of gravity is low, which tends to lessen the vibration so annoying in a launch. There is no oil in the base because while the engine is running the grease, from a cup attached to the fly wheel end, is forced through a hole drilled in the shaft to the pin bearing. A very simple and reliable form of vaporizer is used. Air valves are not used. The gasoline spray and air, upon leaving the vaporizer, enter the transfer port, being there warmed by the hot cylinder wall, and is sufficiently heated to thoroughly vaporize before entering the engine base. This is an important feature, as it renders one adjustment of the needle valve sufficient for all time.

Fifty cents is the price of a single copy of the January "Buyers' Guide Special" number of the Cycle & Automobile Trade Journal, but it is included in a year's subscription at $1.00. Subscription blank will be found on page 333.

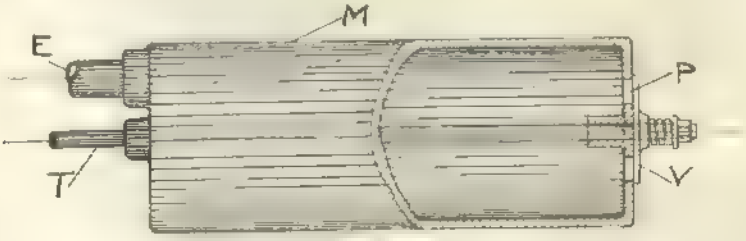
motor, is so arranged that it can be taken apart and replaced in position without any experimenting for determining the position of timing. On the rear of the brass plate is provided means for advancing and retarding the time of ignition. This outfit comprises a switch, inasmuch as the throwing off of the primary contact disconects all currents everywhere.

The Weiss Muffler

The Weiss Muffler, made by Thomas Weiss, 286 Graham street, Brooklyn, N. Y., is, like others, designed to muffle all noise of gas engine—exhaust without back pressure.

The Weiss muffler is an expansion chamber of about five times the cubic contents of one of the cylinders of the motor and into this chamber the motor exhausts. This chamber is equipped with a valve to the atmosphere, the opening or closing of which is timed, so that it is closed when the exhaust port of each cylinder opens, and the instantaneous delivery of the products of combustion from the cylinder into the expansion chamber takes place. This last named occurrence produces the pistol-shot-like noise which is heard when a gasoline motor exhausts into the atmosphere unobstructed or through the cut-out of a muffler.

Just at the time of this delivery, however, the valve from the expansion chamber into the air is closed, and the noise is prevented. Immediately thereafter, the valve opens, and is fully open when the piston is traveling



The Weiss Muffler

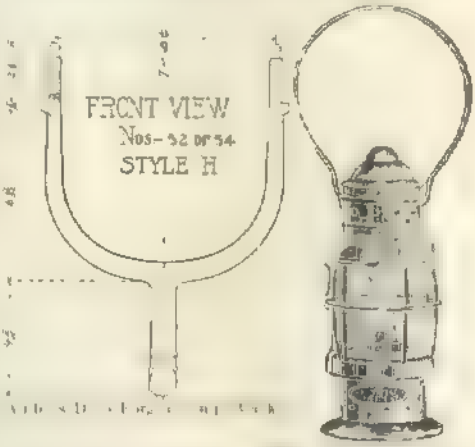
fastest, and expelling the foul gases from the cylinder freely and unobstructed through the expansion chamber into the atmosphere.

Besides the advantage of a noiseless exhaust there is claimed for the Weiss muffler the additional merit of preventing soot deposits on pistons, cylinder walls, valves, etc., because all products of combustion are freely expelled; and the free and unobstructed exhaust also prevents fouling of the incoming charge by burned gas residue being retained in the cylinder.

Miller's New Lamp Bracket and Lantern

We illustrate herewith two new specialties marketed by Charles E. Miller, 97-101 Reade St., New York. One is a standard fork lamp bracket. These lamp brackets are drop forged from stiff, strong steel, with a long stub of liberal stock to be forged into shape to fit to the car as desired or welded to other attachments. This style of bracket has been very extensively used, and Mr. Miller reports a large sale to manufacturers of automobiles, as well as to manufacturers of lamps who furnish their equipment complete with this style of bracket. These brackets are made with either plain or curved stub, and in two sizes. No. 1 measures, between centre of prongs, 8½ ins.; No. 2, 7 ins.

They list at $1 50 each, with a liberal discount to dealers and manufacturers.



Miller's Engineer's Lantern

He is also offering an engineer's brass lantern, which is being used by automobile parties having their private garage. This is a very handy and neat lantern, and is furnished

[illegible] polished brass. The diameter of the globe is 3 ins., height of globe 4½ ins, extreme height of lantern 10 ins.

The price of this lantern is $3 00 list

The Grout Brothers' Automobile Co., Orange, Mass., have just delivered one of their handsome 4-cylinder, 28-30 H. P. 1906 gasoline touring cars to Thos. A. Edison, of Orange, N. J.

Steam Carriage Boiler Co., of Oswego, N. Y., have supplied 10 large 24 inch boilers, each mounted on a sliding platform, with kerosene tank, kerosene burner, injector, air pump, etc., to be used by miners in thawing the frozen ground while digging for gold in Alaska.

A year's subscription at $1.00 includes without extra charge a copy of the January "Buyers' Guide Special," which is a book containing over 700 pages, including a complete classified directory of the trade. Do not fail to secure it by filling in the subscription blank on page 133 and mail at once.

MOTOR BOATS

Coming Marine Events

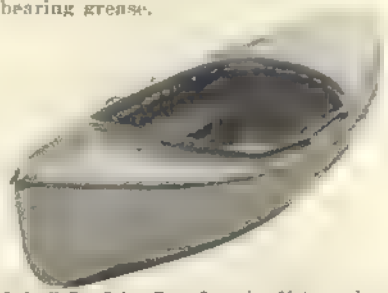
January 29-30—Motor Boat Races at Palm Beach, Florida.
February 20 to March 8—National Motor Boat and Sportsmen's Show at Madison Square Garden, New York City. J. V. H. Dreser, Mgr., 1 Madison Ave., New York

"Mather" Sea-Going Dories

The cut herewith shows a sea-going dory launch recently brought out by C. B. Mather Dory and Launch Corporation, Rowley, Massachusetts, and designed for rough water. The motor, tool box and battery lockers are made with sufficient crown and length to give ample room to get around the motor. This compartment is separated from the cockpit by a bulkhead fitted with a large door. Ventilation and light are obtained by a hatch fitted in the deck, though our illustration does not show the same. Under the forward deck is a compartment for tank and storage. The cockpit is sheathed inside. Seats are slatted and run full length of the cockpit on each side. Floor boards are slatted or solid as desired. The bottoms are of oak, 1½ to 2½ ins. thick (depending on size of hull), planking is of pine, in long lengths, put on lapstreak, 6 to 8 planks on each side. Knees are of white oak, 3 ins. by 1 in., spaced 18 to 24 ins. apart, and are filled in with heavy steam bent timbers. The shelves are of white oak securely riveted to each knee. The deck timbers are of oak, dovetailed to the shelves. Transoms are of oak, 1½ to 2 ins. thick, and fastened to the bottoms by heavy oak knees. Decks are of oak or white pine; deck sheers are of oak cut to conform to the shape of the hull. Coamings, or wash-boards, are of oak, steam bent to shape, and extend from 3 to 6 ins. above the decks. Fastenings are all of galvanized iron.

The planking is finished with three coats of paint above the water; two coats of lead and two coats of copper paint below. Decks, coamings, bulkheads, etc., are finished with three coats of spar varnish. The hull equipment consists of two bow and one stern chock, one bow and one stern cleat, one pair rowlocks, all of brass; one steering wheel near motor and one at forward end of cockpit; balance rudder, shoe and steering gear.

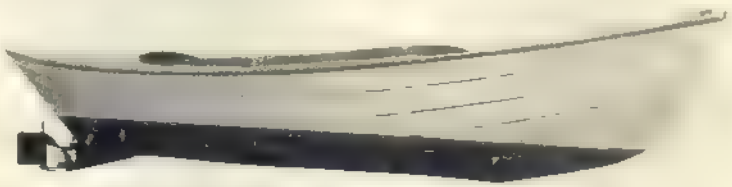
These launches are equipped with a thoroughly reliable motor, installed in the best possible manner. Each motor is carefully tested and is in perfect running order when shipped. All are fitted with bilge pumps and are for use in salt water. Piping is of brass. Tanks are large and made of heavy galvanized iron. With each launch is sent an extra set of batteries, can of oil under oil and box of bearing grease.



"Mather" Sea Going Dory Launch—Motor under after deck

The 22 ft. launch has a beam of 5 ft. 8 ins. and is equipped with a 3-H. P. motor. Price is $310. Three other stock sizes are made, 25 ft., 5 H. P., 27 ft., 6 H. P., and 30 ft., 7 H. P., listing respectively at $340, $475 and $525.

These dories are fitted with Hubbard, Hartford or Lathrop motors as desired by customers.



Side view "Mather" Sea Going Dory Launch

The Motor Boat Club of America was organized at a meeting held at the Hotel Astor, New York City, on October 26. Charles P. Tower, chairman of the regatta committee of the Larchmont Yacht Club, was elected president; H. S. Gamble is the secretary, and the committee on plan and scope is Charles Francis, H. S. Pease, Dr. S. Oppenheimer, A. D. Roach and George J. Vestner. The new club will secure permanent quarters on Riverside Drive and have a thoroughly up-to-date clubhouse. It was decided to negotiate at once with foreign clubs for the purpose of arranging one or more international contests next season. It is intended to make the Motor Boat Club of America what the Automobile Club of America is to automobiling. Over 100 members are already enrolled.

Reliance 1906 Motor Cycles

We show herewith the Reliance 1906 Standard Motor Cycle made by Reliance Motor Cycle Co., of Addison, N. Y., which will also be furnished with chain drive if desired. This machine is equipped with the same motor as the 1905 machine, rated at 1¾ horse power, but developing at least 2 horse power. The bore and stroke are respectively 2¾ and 3-inch. The wheel base is increased 7 inches, being now 55 inches. Weight of 1906 machine, fully equipped, is 110 lbs., and it lists at $150.

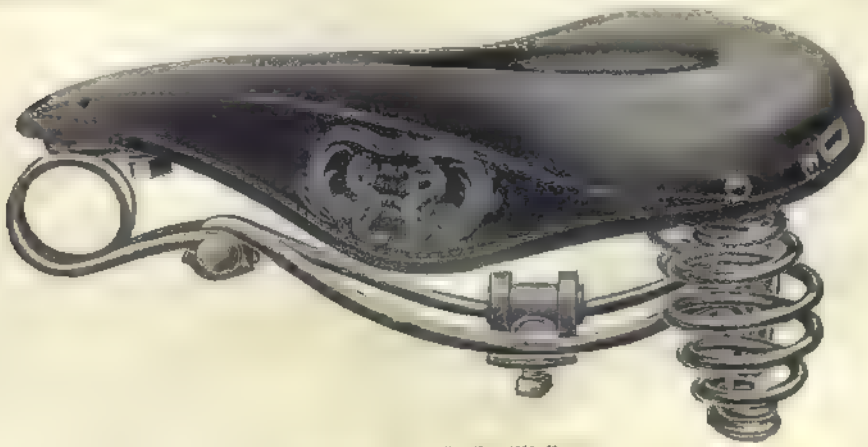
Reliance 1906 Motor Cycle.

Besides this model they will have a 2½ H. P. machine with the same frame but with G. & J. motor tires especially designed for touring. This model will weigh but 5 or 10 lbs. more than the standard machine and will be well adapted to traveling men's use, being capable of carrying 25 to 75 lbs. of samples. The 2½ H. P. machine lists at $175.

In addition to these two models they expect to bring out a 4 H. P. double cylinder machine using the same frame.

The New England Motor Co., of Lowell, Mass., in order to obviate the delays occasioned by the necessity of charging ignition storage batteries, contemplate establishing depots in the principal cities for the interchange of a discharged battery for a charged one by the payment of a small fee. The batteries, to be interchanged, must be of the same series, that is to say, a 1906 battery will be exchanged for a 1906. A year-old battery may be exchanged for one of the current year by the payment of a small additional fee, and then it in its turn becomes interchangeable with other current-year batteries.

B. G. Koether, former purchasing agent of the Hyatt Roller Bearing Co., of Harrison, N. J., has left the purchasing department to become assistant sales manager of that concern.



Mesinger Model A Saddle 1906 Form.

Mesinger 1906 Saddles

The H. & F. Mesinger Mfg. Co., 1801-07 First Ave., New York, have improved their model A motor cycle saddle for 1906 and added a larger saddle, called Model A A. The 1906 Model A is shown herewith. It is the same in general apearance, but smaller than Model A A, and is padded with felt, while A A is padded with coil hair. Model A A is are two strong barrel shape coil springs, which on a heavy bump telescope noiselessly together. A strong three-piece clamp, with two set screws, secures the saddle to the seat post.

IF YOU CAN'T BELIEVE YOUR EYESIGHT — HOW ABOUT YOUR EARS?
ASK ANY MAN WHOSE CAR IS EQUIPPED WITH
SOLAR
LAMPS
ESPECIALLY IF HE FORMERLY USED SOME OTHER KIND
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MECHANICAL AND TECHNICAL Department

EDITORS

Gasoline vehicles—Chas E. Duryea, Duryea Power Co., Reading, Pa.
Steam vehicles—J. A. Kingman, Locomobile Co. of America, Bridgeport, Conn.
Motor cycles—Chas H. Metz, Waltham, Mass.
General Construction—V. V. Torbensen, Torbensen Gear, Inc., New York

(We desire our readers to make full use of this department by asking our department editors for advice on all subjects connected with automobiles. We will also grant full use of our columns to those who disagree with the views and opinions expressed in this department.)

NOTICE.—Matter for the attention of the Editors of this department should be addressed to the particular editor it is intended for, care of The Cycle and Automobile Trade Journal, and must reach Philadelphia by the 10th of the month to insure insertion in the next number.

Steam Vehicles

BY J. A. KINGMAN

Philadelphia, Nov. 7, 1905.

I have recently made a [illegible] Keating steamer, with a Lo[illegible] engine, and placed the boiler in front; the boiler has [illegible] tubes (fire). Now my trouble is that it takes all the down draught 5 or 6 gallons of gasoline in 5 miles. How much cubic [illegible] ought to have for such a boiler with down draught? I have forced draught for light steam, but it takes 15 minutes to get steam up. I have extended the shell [illegible] and have boiler over front wheels, part of [illegible] one, no trouble. It was [illegible] design for the down draught, I will be exceedingly obliged.

H. ODENATH.

Your letter doesn't give sufficient information for me to tell exactly what is your trouble and how it may be remedied. It seems unlikely that the present arrangement of your draft, however faulty it may be, is entirely responsible for the unnecessarily large consumption of gasoline. As you say, the Manjo-shaped smoke bonnet, and [illegible] the exhaust down through [illegible] smoke [illegible] this way? [illegible] will get only close [illegible] fully, examining the [illegible] sketch the location of the [illegible] exhaust [illegible] time, I will endeavor to help you.

J. A. K.

Pantam, Conn., Nov. 7, 1905.

I have always been interested in the department of the Journal of which you have charge, and have felt constrained many times to call you to account for your lack of interest in the use of kerosene as a fuel for steam cars. Now, I have a steamer equipped with boiler, burner, automatic fire and water regulators, made by F. W. Ofeldt & Sons, [illegible] and I have [illegible] lightest trouble in any way, always have plenty of steam [illegible] anything that comes through the country, and never have any of the worries such as I see pressed by other writers of letters to your Department. I only carry from 40 to 50 lbs. air pressure, and as a rule, from 300 to 400 lbs. steam pressure. The only thing to do to have all of the pleasure and run with kerosene, and feel perfectly contented all the time you are out on the road that your car will not blow up, is to see that the strainers in pilot light and main burner are clean before you [illegible]

W. S. ROGERS.

You have obtained an erroneous impression of the Editor's interest in kerosene burners, which has [illegible] the [illegible] always been taken that both gasoline and kerosene have their own advantages [illegible] kerosene burner has never been questioned by the editor, who has always endeavored to make it clear at all times that he is absolutely unbiassed, which is positively the case. You admit in your letter that you inspect the gauze placed in the pilot light and the main burner supply pipes regularly, in fact, before every run, and probably the most enthusiastic advocate of the kerosene burner would not for a moment admit that carbonization is a drawback to the kerosene burner. This does not prove that the [illegible] is [illegible] the fact that the largest manufacturer of steam cars built in this country do not use kerosene burners, is significant only up to a certain point and does not prove that such manufacturers believe that one form of burner is to be preferred to another. Such letters as yours indicate progress, and that [illegible] is the thing to be kept in mind. Your letter is interesting and valuable as a proof of satisfactory automobile burners, but letters from steam car owners, giving an account of their troubles with burners, have equal value because they bring out weaknesses, and show where matters can be improved. It is most unlikely that any manufacturer or any owner wishes to see gasoline entirely superseded [illegible] paying for the experiments of manufacturers to such an extent as heretofore.

J. A. K.

Shelbyville, Tenn., Oct. 23, 1905.

I want to expand the ½ in. copper tubes of a copper 14 in. boiler of the Standard type, on a mobile runabout, that has, by accident, been burnt or scorched the second time, and in consequence tubes have been worked on twice. So will you kindly [illegible] where I can get it [illegible] price, a flue expanded of the proper dimension? Also [illegible] me the name of the makers of the Mobile Co., or give me the address of some one who has such a boiler for sale, or address of some manufacturer who makes similar boilers in the event the Mobile Co. made their own boilers. It is my purpose to try and repair the [illegible] question, with a flue expander, and if the [illegible] cannot be successfully effected then I will want to replace it. In this connection I was also to state that some months ago I noticed in the Cycle and Automobile Trade Journal a communication in your department [illegible] copper ferrule or thimble about ¾ in. long into the ends of the tubes where they have become too thin from [illegible] the [illegible] I [illegible] this as a satisfactory repair and I would like to have his address if you can give it to me, and if in your opinion the ferrule in question would give good results. I will try and ascertain from him

where these copper ferrules or nipples can be had.
C. W. GARRISON.

If the 14-in. boiler on your Mobile runabout has only been burnt out once, there seems to be no reason why you could not expand the tubes with very little effort and without having to replace any tubes. It ought not to be difficult to get an expander, as almost any metallic taper plug will do the work. You should use caution not to strike too hard a blow, as the copper is soft and it doesn't take much force to expand a tube so that it is absolutely tight. I cannot tell from your letter just how badly the boiler is scorched, but if it was not subjected to the heat of the burner for a very long time after becoming dry, there should be no necessity for removing the boiler from the car. Tilt it up so that it rests on the rear springs, and you can thus do the work of expanding the tubes very conveniently and readily. Most likely there is a hand pump on your car so that you can give the boiler a test after you have expanded the tubes. It is usual practice to remove a tube that cannot be made tight by expansion, but the copper ferrules, which you refer to, ought to make a fairly good substitute for a new tube. Cannot advise you where to obtain such nipples.
J. A. K.

Gasoline Vehicles

BY CHAS. E. DURYEA

Topsfield, Mass., Nov. 3, 1905.

As I am getting ready to buy another machine and would like something different, that I don't know where to find it, I thought perhaps a letter in your column of correspondence would help me and others in the same fix. The car that I have is large enough, has power enough, although only four horse, because I am not looking for speed, but one with room in it. I want space for a trunk or two or three barrels, if I want to go to town; that is, a kind of handy wagon, a horse always harnessed. I would like to hear from some one who makes such a machine.

A word about batteries:

If I connect my batteries, as per cut, will their life be any longer than when connected differently, or when one end is connected up all the time. You will see neither end is connected except when in actual use. Will spark be as large or larger.
O. E. LAKE.

Your needs are doubtless the needs of thousands of others, viz., for a wagon that will be practical rather than sporty. Unfortunately the auto trade has largely been influenced by the sporting element and because of this fact, it has not developed along practical lines as it undoubtedly will in future. There are plenty of men in this country who own forty horses and could drive a forty-horse team if they chose to do so, but they are satisfied to ride for business and pleasure in light vehicles, simply constructed and drawn generally by one horse, occasionally by two and very seldom by more than two. Now it is well known that a horse can exert several H. P. for a few seconds whereas a mechanical motor, being rated at its maximum H. P., instead of at its average, cannot stand such an overload, so the mechanical vehicle, instead of being of one or two horse, must be of ten or twenty; but why it should ever be more than this, and why [illegible] is one of the strong [illegible] not yet answered. [illegible] a number of makers who supply light vehicles in which the rear seat can be removed, leaving a platform, such as you require. Reference to our columns for the past year will show a number of these.

You cannot connect your batteries as you suggest. You must have the circuit breaker between the batteries and the coil. As shown in the sketch, there is no means of connecting at the coil end, so you would not get a spark at all and you would get a short circuit at the commutator end each revolution which would destroy the batteries quickly.
C. E. D.

Montevideo, Minn., Oct. 27, 1905.

Having noticed the kindness shown by you in answering questions in the Journal, I am sending for your opinion, two ideas of mine. In this portion of the country the best thing is a steel tire, because of country travel.

The spring spoke seems too simple not to have been tried. But what is the matter with it?

Is the idea in Fig. 2 practical?

If either of these are any good, may I have your opinion by letter, if not they are not worth discussion anywhere. Any wheel larger than the one used now, and having a steel tire, would fill a great need here.
E. ODERKIRK.

Inventors have tried almost every conceivable method of making elastic wheels, but the two best methods still remain, good springs above the axles and good tires on the wheels. The sliding spoke with spring in it is all right, considered as a single spoke, but it should be quite evident that spokes at right angle to this, would be forced upward bodily and probably broken off at the hub if constructed as shown. It seems to be necessary to make the metal rim jointed to prevent it breaking by vibration and if jointed the joints wear out rapidly because of the dirt and grit, which enters them. Further, all the slides wear rapidly and the wheel becomes very noisy. We do not know of any device of this kind which has continued in use, although the patent office contains a goodly number of them. The second idea is also old but is some better than the first. The outside rim may be stiff and so have no joints to give trouble. In this event the whole tire must yield under the load, which calls for a very light inflation and would require a tire very wide or there would be no stiffness and rigidity in the plane of the wheel as is required in vehicle [illegible]. Some of our readers may know of experiments with similar devices that would be interesting.
C. E. D.

East Moline, Ill., Oct. 23, 1905.

While on a search for information in your Mr. C. E. Duryea's department for information on the proper setting of valves in an automobile engine, I came across the issue of June 1, 1905, in which he says that he has previously answered such a question several times, and dislikes to take space in your columns each month to reanswer the same question. Now I have spent some time looking through previous issues to June 1st, and I am unable to find just what I want, so that I trust you will pardon me if I ask Mr. Duryea to tell me, through the columns of your Journal, what he believes to be the most satisfactory setting of an inlet valve. I understand that it is common practice to open the valve after the piston has passed dead center, and hold it open until it passes the other center, but how much. I presume the correct setting will be somewhere between 10 and 30 degrees past center and that the valves should remain open while the crank passes through approximately 180 degrees, but I would like to get at as nearly as possible what is considered the best practice, and trust Mr. Duryea will be able to tell me.
E. W. NICHOLSON

Your question is rather one for the designer than for these columns. Proper valve opening depends upon many things. The weight and size of the valve, the manner in which it is opened, the amount opened, the length and size of the pipe between the valve and the mixer, the speed of the engine and type of engine. Generally speaking in a four cylinder engine, the inlet valve should open before the piston has travelled perceptibly away from dead center, probably 5 to 10 degrees after dead center, and it should close one half revolution later. [illegible] cannot be told by theory. With [illegible] the momentum of the gases will ram [illegible] until slightly above atmospheric pressure and the valves should be [illegible] any part of the charge can escape. At the close of the exhaust stroke the exhaust valve should remain open until the exhaust pressure has fallen as low as possible, after which the exhaust valve should close, followed immediately by the opening of the inlet valve. If the exhaust valve closes too late, some of the burnt charge will be drawn back. The exhaust valve should open from 10 to 30 degrees ahead of center, particularly at high speeds.
C. E. D.

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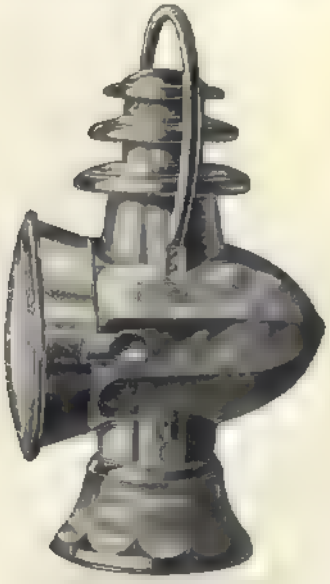
LATEST MODELS



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We were not satisfied with merely producing a Lamp that would **burn,** that would **not smoke,** that would **stay lighted,** that was **strong** and **finely finisned,** important as these all are, but it must have some **style** about it. A smart look! When you get an Atwood Lamp you get ALL of these requisites.

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It is not necessary for a Lamp to be homely and crude in order to be good.

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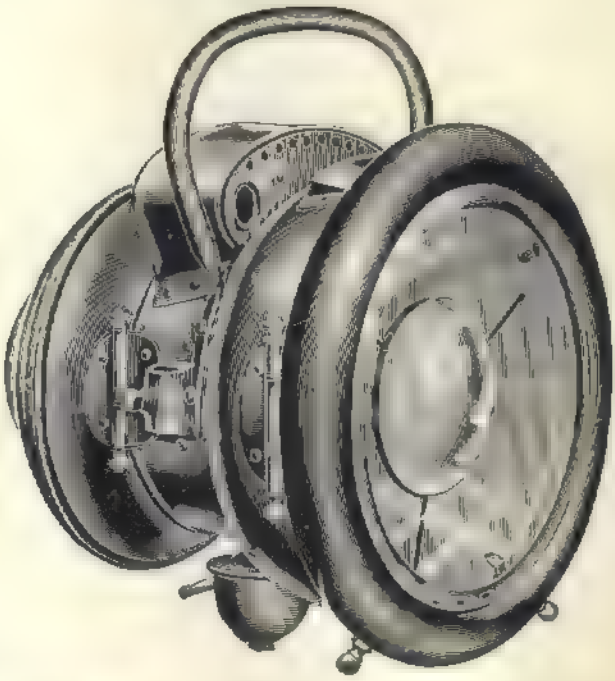
AUTOLYTE

MODEL 1906



100.	Diameter of front, 9 inches; Depth 9 inches.	Price,	$12.50
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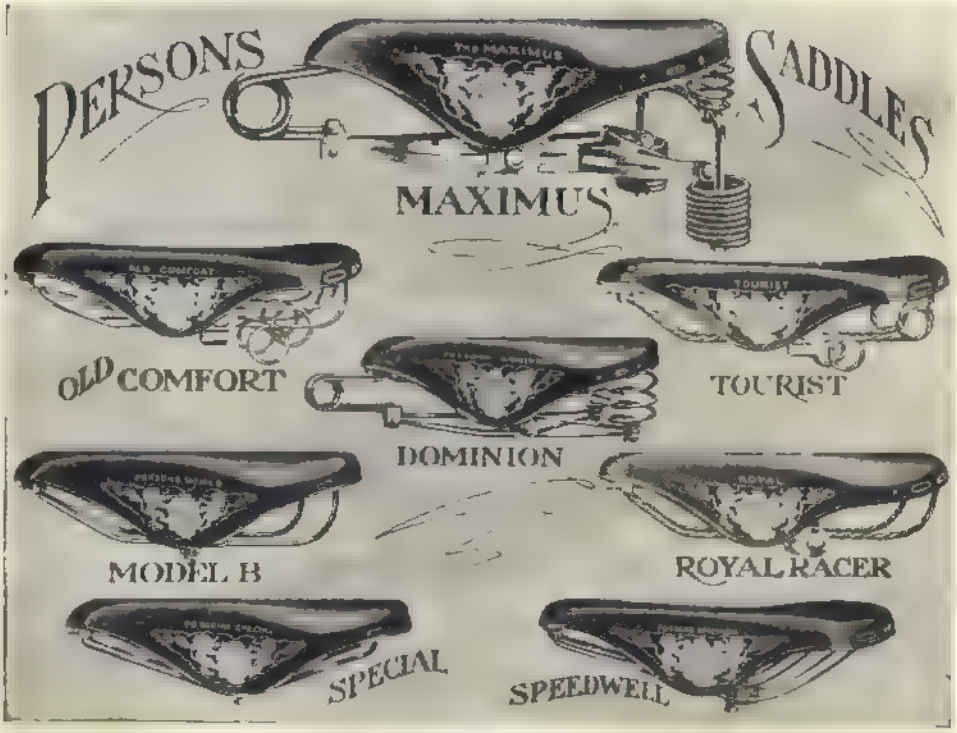

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OF EVERY PAIR OF GAUNTLETS THAT WE MANUFACTURE. WE TAN AND DRESS OUR OWN LEATHER, AND YOU GET THE BENEFIT IN

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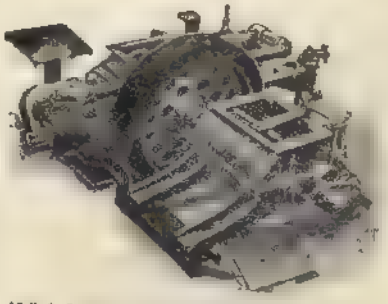


14 H. P. Special, with three-speed sliding gear direct line with motor shaft

Motors and Transmissions are the ones to tie to. We have built our business on our patrons' satisfaction. What better guarantee that our product is reliable can you ask? Glance over the following:—

Staatsburgh, N. Y. July 31, 1905.

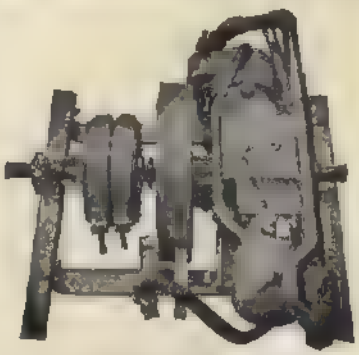
BRENNAN MOTOR CO.
Syracuse, N. Y.

Gentlemen:—

We are pleased to say that the 14 H. P. Motor which we purchased of your company is working fine.

The car motor was mounted in weighs about 1300 lb. and we have no trouble to go up nearly all hills on high speed, and never use lower than second gear for the very heaviest hills. Always starts prompt and holds the compression remarkably. Have had no occasion to regrind the valves even, and as this is now well advanced in the second season makes it ahead of anything we have seen.

Respectfully yours,
Name given on application.



Standard Horizontal Motor mounted with Planetary Gear

Brennan Motor Co.
Syracuse, N. Y.

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Solar Lamps

If you buy Solars you know that "lamp troubles" are at an end, and you have certainty of lighting under any and all weather and road conditions.

Our booklet is interesting. Let us send you one.

Badger Brass Manufacturing Co.
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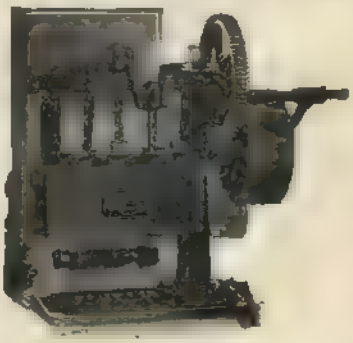
AIR COMPRESSORS



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Single and Three Cylinder Styles

Just the thing for public or private garage for inflating tires, cleaning cushions, etc.

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Season Contract Work Specially Solicited.
Send us your specifications

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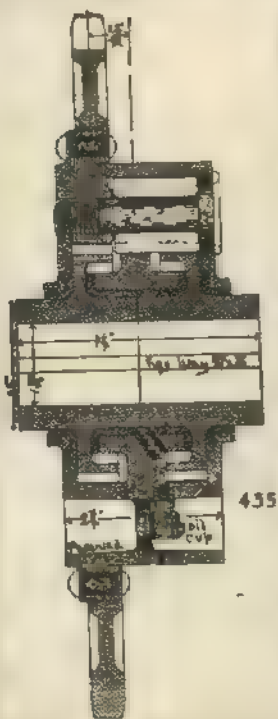

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Large Variety of Sizes and Styles

Both SPROCKET and BEVEL DRIVE

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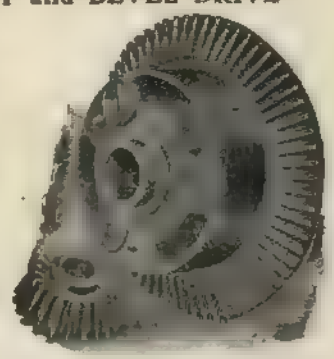
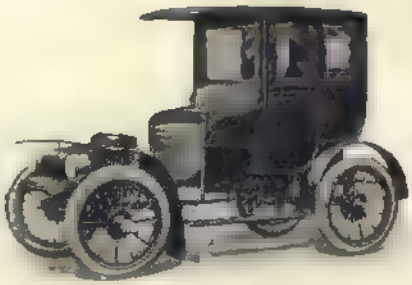


BEVEL DRIVE DIFFERENTIAL

Warner Gear Co., Muncie, Ind.

WRITE FOR 1905 CATALOG

Stanhope



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Baker Electrics

embody every possible good feature required to make them what they are so frequently called

The Aristocrats of Motordom

Every particle of material used is the best that money can buy. The workmanship is perfect, the upholstery and exterior finish superb. All wearing parts are equipped with ball bearings, reducing friction to the minimum and insuring smooth, easy running cars.

The perfect mechanical construction of BAKER ELECTRICS enables us to use fewer battery cells than any other electric vehicle, at the same time securing greater efficiency and lowering the cost of maintenance. Their beauty of finish, quiet running qualities and simplicity of operation make BAKER ELECTRICS ideal for town use.

We desire agents in a few important cities not yet covered. Write for particulars.

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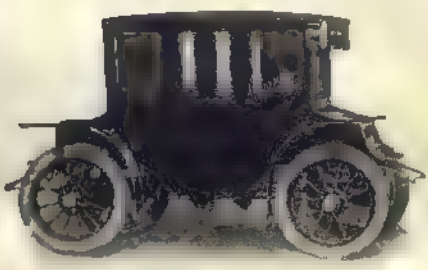

Inside Driven Brougham

Outside Driven Brougham

AN AFFIDAVIT THAT SPEAKS VOLUMES:

"Every Stock Car Guaranteed to Show Sixty Miles an Hour Before Leaving the Factory."

E. R. THOMAS.

Can any praise of ours compare with the eloquent testimony concerning the 1906 Thomas contained in this remarkable affidavit?

Buffalo, N. Y., Nov. 10, 1905

This is to certify, That we the undersigned, this day rode at the rate of sixty miles per hour with five passengers over average roads, maintaining a speed continuously in regular stock model 1906 THOMAS touring car, and went up a 14 per cent. grade with five people, on the high speed and on very bad roads increasing the speed all the way up the hill until we reached 40 miles per hour at the top.

The car is exceedingly smooth and quiet in operation, and the clutch is extraordinarily sweet and effective.

This is the only American built stock car that within our knowledge has made 60 miles per hour on ordinary roads, even without passengers.

(Signed)

AUBREY H. MARTIN, Philadelphia, Pa.
C. A. COEY, Chicago, Ill.
F. W. DART, Hartford, Conn.
C. S. HENSHAW, Boston, Mass.
F. B. HARPER, Beverly, Mass.
A. M. SPEAR, Jr., Portland, Me.
A. S. ROBINSON, New York.
RAYNER GODWIN, Brooklyn, N. Y.

State of New York,)
County of Erie,)

Sworn and subscribed to before me this 10th day of November, 1905
ARCHIE I. DRAKE, Notary Public.

The E. R. Thomas Company, Buffalo, N. Y.

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FROM TOP TO TIRE

BAKER
ELECTRIC VEHICLES

are high-class in every respect. They are correct in design, unexcelled in appearance, unequalled in quality and absolutely the most economical and satisfactory in service. The "BAKER" will run 365 days in the year.

IMPERIAL, with top, $1200

This is the popular carriage for doctors and business men. We make several other models, including Runabouts, Stanhopes, Depot Carriages, and surreys.

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The only exclusive manufacturers of electric carriage in America

Nearly a Year Ago

when it became known to our competitors that we would continue to use that single cylinder in all cars selling at less than $1000.00 some of our competitors "looked wise" and smiled. Others openly said they could see our finish, one told his friends he had the Cadillac on the run sure. Our dealers were drummed to death by two cylinder horizontal makers, and told they'd "go broke" if they stuck to single cylinder construction. "It was out of date," a "back number," and "not wanted by intelligent buyers." "Country trade might buy a few but the cities wanted two cylinders," etc., etc. What is the result? At this writing

The Cadillac Single Cylinder

has had by far the largest sale in numbers and in volume of any make in existence. The dealers knew a few things. They knew the value of quality, price, and satisfied owners. They knew the capacity of the Cadillac people, and more than a dozen of the big ones dropped everything else and pushed the Cadillac to a standstill. Those are the dealers who have made money. We have ten dealers in the ten largest cities including New York (the creator of "style"), each one of whom has sold and delivered to June 1st more than one hundred Cadillacs and three of these have had over one hundred and fifty each, two, more than two hundred each. We have five dealers in the Metropolitan district alone to whom we had shipped five hundred sixty-five single cylinder Cadillacs during February, March, April and May. One of these dealers has sold 84 per cent of the automobiles purchased by residents of his district and

Every One but One a Cadillac

If those who thought single cylinder Cadillacs were "good only to sell the country trade," will do a little thinking and a little investigating they will find that Cadillac single cylinders are good to sell anywhere and do sell almost everywhere, but most and best where buyers have experimented, and know most. At this writing while makers of two cylinder horizontal cars are resorting to all kinds of schemes to dispose of a product of only a few hundred cars, or are getting into the high priced multiple vertical class, the Cadillac factory is being worked overtime to supply a demand for an additional lot of single cylinders in excess of the 3000 originally planned for and already sold.

CADILLAC AUTOMOBILE CO.

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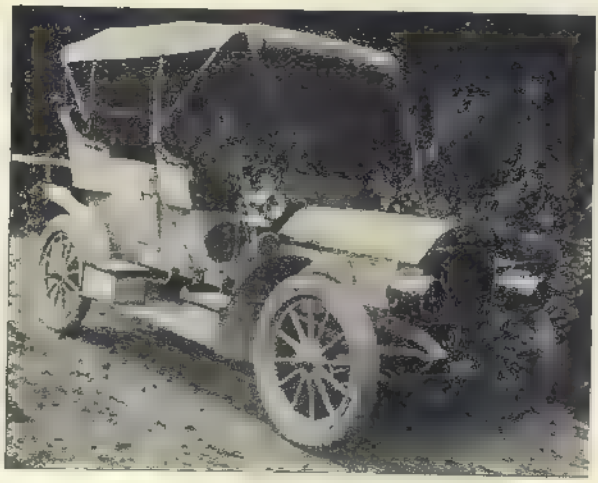

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Side Entrance Tonneau, Four Cylinder, Water Cooled

Light Touring Model A, 18 Horse Power . . . . . Price **$2,000**
Touring Model B, 30 " " . . . . . " **2,500**

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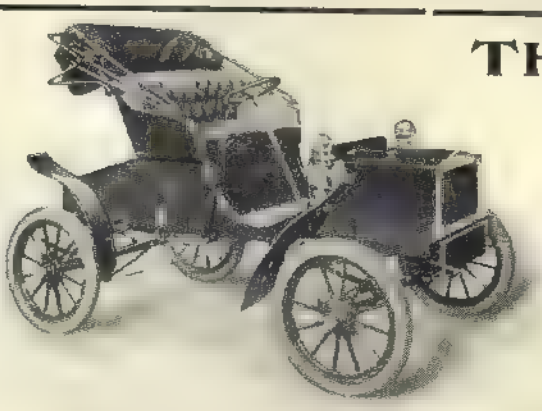

SIMPLE
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ELEGANT

MODEL D

MODEL C—$600.00—8 H. P. Single Cylinder, any tire.
MODEL D—$650 00—8 H. P. with full cape top and aprons.
MODEL E—1250.00—18 H. P., double opposed, any tire.
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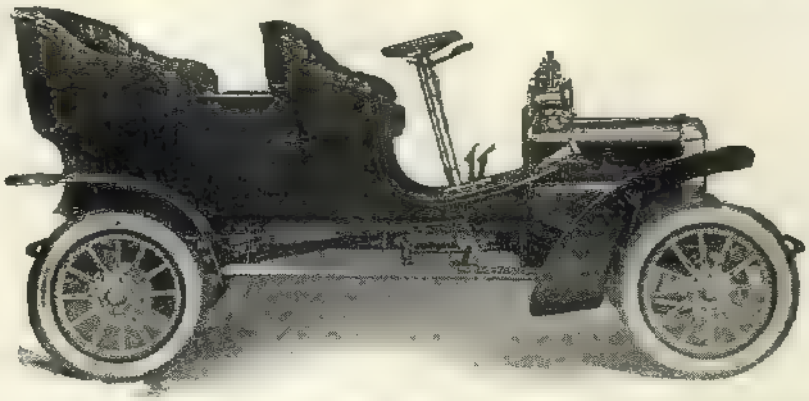
WRITE

THE WESTERN TOOL WORKS, GALESBURG, ILLINOIS, U. S. A.

THE SILENT NORTHERN



You cannot enjoy touring unless your car rides comfortably. The Northern Touring Car with full elliptical springs is the most comfortable riding car in the world. Absolutely Noiseless, no belts, chains, gaskets, truss rods or strut rods to to give trouble. New mechanical features of real value. Why not send for our catalogue and learn more about the latest development in construction?

Don't overlook the Sturdy Northern Runabout $650.

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1906 Models—40 and 60 H. P.

Our New Factory, now building, in Wilkes-Barre, Pa., will be one of the largest and most modern automobile plants in existence. We will move into this new plant about January 1st, 1906. Address until then

MATHESON MOTOR CAR CO. HOLYOKE, MASS.

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BULLARD AUTOMATIC WRENCH

Specially adapted to Automobile use.

Just What You Want

How many times have you skinned your knuckles with the old-fashioned wrench? How many times has it slipped and taken the corners off a nut. How often has it gone cranky and refused to come off when you wanted it to? **No wonder you said things.** Wouldn't you like to have a wrench that won't slip and never balks? One that you can slip onto anything, anywhere, without adjusting it? **Buy a Bullard.** It's automatic, self adjusting. Works in a limited space, because there's no lost motion. Never cramps. Greatest power, longest wear. Made in 5 sizes, up to 3 inches capacity.

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We are in position to quote liberal discounts on your next year's requirements.

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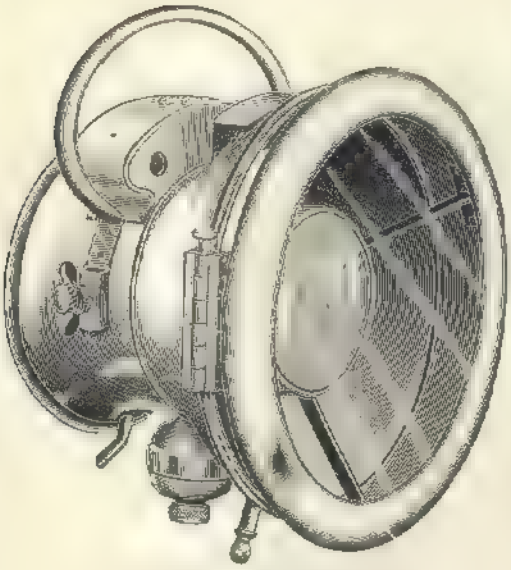
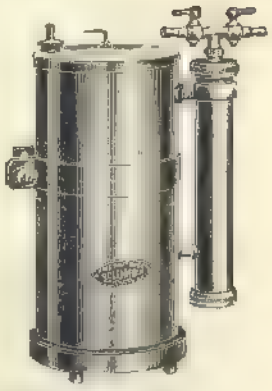
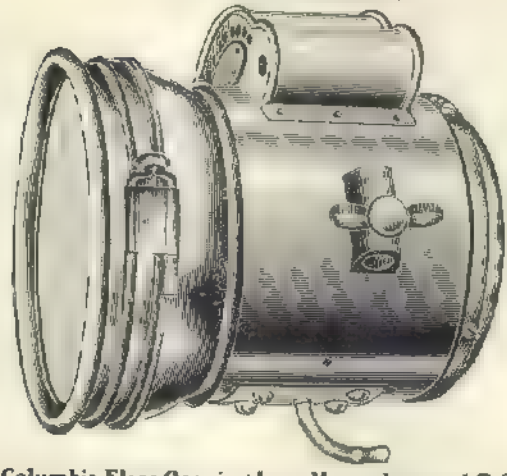


Columbia Parabolena Lamp

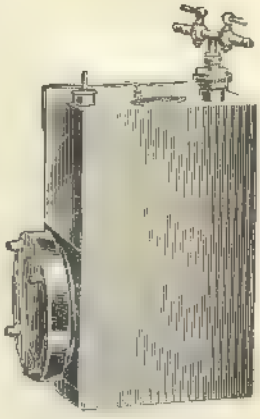
COLUMBIA LAMPS and GENERATORS



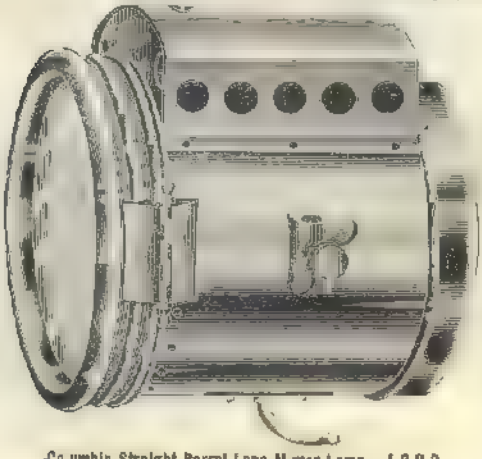
Columbia, No. 2 Generator
32 oz. Carbide.



Columbia Flare Opening Lens Mirror Lamps, 1 & 2



Columbia, No. 2½B Generator
32 oz. Carbide.



Columbia Straight Barrel Lens Mirror Lamp A-B-C-D

Columbia Lamps are made on honor, and are equipped with genuine Bausch & Lomb lens mirrors, hence their efficieney is guaranteed.

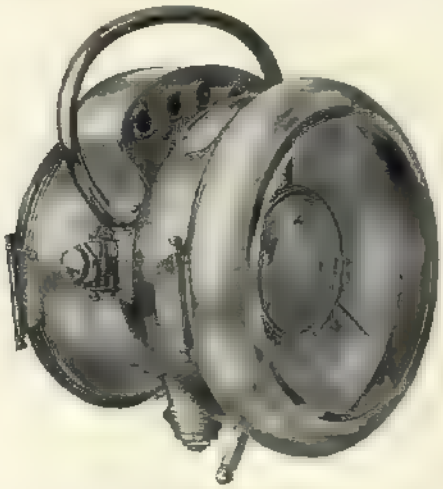
Columbia Generators are simple, efficient, easy to control and operate.

HINE-WATT MFG. CO.,

60 Wabash Ave., CHICAGO, ILL.

"Sunlyte" Accessories

The New York Sporting Goods Co., of 17 Warren St., New York, in connection with a large metropolitan brass factory, will put on the market for 1906 an attractive line of auto specialties, including lamps, horns, spark plugs and novelties. Orders are solicited from manufacturers and jobbers at special quantity prices, and they will be branded as the purchaser requires.



The "Sunlyte" Lamp.

The regular output will be sold under the name "Motor Goods Mfg. Co.," and their lamps are called the "Sunlyte."

The illustration shows the new "Sunlyte" French style lamp, which is made of heavy brass, with silvered reflector and Bausch & Lomb condensing lens. It opens in front and rear, and is focused to throw a very powerful light. This style lists at $15.00, and dealers and jobbers are invited to write for net quotations.

Gray 1906 Muffler

The Gray-Hawley Manufacturing Company, 605-607-609 Fort St., West, Detroit, Mich., are now making deliveries of their 1906 Muffler, which they designate as model 18. The general construction of model 18 is similar to their model 16, which is so well known as to require no further description.

One of the new features is the dome, or collector, placed on the discharge end of the

Gray Model 18, 1906 Muffler.

muffler so that the exhaust gases are collected after having passed through the Muffler and discharged through a tube which may be bent so as to turn the gases in any desired direction.

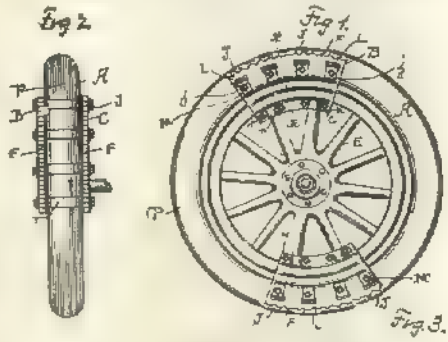
A very simple and efficient cut-out is fitted on the head inside the dome opening direct from the first or inner chamber, and allowing the gases to be collected and discharged through the dome in the same manner as when the cut out is closed. The cut-out lever is easily connected by wire and is self-closing. By using the collector tube the cut out is equally efficient, but does not make half the noise as when discharged directly into the atmosphere.

As an item of interest it might be stated that the two French mufflers which were found to be the most efficient after a thorough test in Paris are built on the same principle as the Gray Muffler, on which the Gray-Hawley Mfg. Co. control United States patents.

Dentzeau "Non-Skidding Shoe"

Geo. Dentzeau, 161 Grand street, New York, in addition to automobile license pads, etc., is now making a non-skidding tire shoe which is intended to give traction in mud, snow, sand, or on ice.

The shoe consists principally of two metallic shells which are placed against the tire, felloe and a portion of the spokes. These shells are held together at the bottom by bolts and at the top by bands which pass over the tire. The upper or outer portion of each shell has a corrugated surface. This portion of the shell is given the same curvature as



Dentzeau "Non-Skidding Shoe."

the tire, but is of less diameter. This permits the wheel on ordinary roads to travel on the tire alone, as the ordinary compression will not cause the shoe to touch the ground.

The bands that hold the shells together at the top and which pass over the tire, in no way injure it as they compress and expand in unison with the tire when going on bumps, etc. These shoes can conveniently be packed away in the car and one or more can easily be clamped on the wheel when required, as no special tools are needed.

The Capitol Foundry Co., Hartford, Conn., have purchased the Standard Foundry Company's iron interest in Parkville, Hartford, and will continue their manufacture of automobile cylinders and high grade castings. Their president and general manager, M. Stickel, who was formerly associated with the Manufacturers' Foundry Co., of Waterbury, Conn., is an authority on automobile foundry work.

The Columbus Electric

The Ideal Pleasure Vehicle

Noiseless Clean Simple Odorless

Seventy-five Miles on One Charge

Any Speed Up to 20 Miles an Hour

Weight 1400 Pounds

Double Chain Drive Solid Rear Axle

Write for further particulars

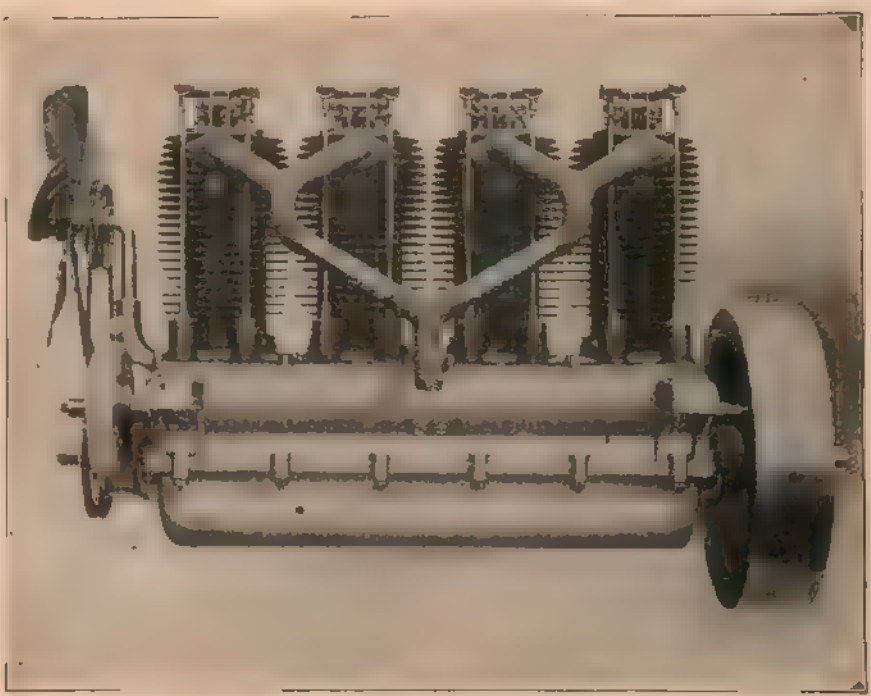
The Columbus Buggy Co.

Columbus, Ohio

"The Reeves"

FOUR CYLINDER, FOUR CYCLE AIR COOLED

AUTO ENGINE



PERFECT AIR COOLING

Fully proved by actual work in cars on the road.

Cylinders tandem, and the rear cylinder, farthest back from the fan, always the coolest one of the four.

We are prepared to demonstrate the truth of these claims by cars driven by these motors at our works, to any person, at any time.

Built in two sizes:

3¼x3¼	in. - - -	12 H. P.
4 x4	in. - - -	20 H. P.

We are prepared to execute either large or small orders; also willing to give prospective customers the benefit of our experience and judgment concerning different forms of automobile construction and equipment.

REEVES PULLEY CO.

COLUMBUS, INDIANA

ANNOUNCEMENT

CORBIN CARS

FOR 1906

MODEL E, Light Touring Car, Price, $2000

Four cylinder vertical, air cooled engine 24 H. P. mechanically operated valves. Jump spark ignition with synchronized system of distribution of the high tension current. Positive force feed lubrication. Sliding gear transmission, selective system having three speeds forward and reverse. Pressed steel frame and steel pan construction. Bevel gear drive rear axle of the floating type. Front axle I beam section drop forged in one piece. New type worm and sector steering gear. Internal and external brakes on rear hubs. Body of graceful design, side entrance of the latest French type, roomy in proportions and luxurious in appointment. Wheel base 100 inches. Extra long springs of special design and great flexibility. Wheels 32x3½ inches. Weight 1800 pounds. Speed up to 45 miles per hour. Two gas lamps, generator, three oil lamps, horn and full complement of tools constitute the equipment.

MODEL G, High Powered Runabout, Price, $1800

The specifications of this model de luxe two passenger car are identical with the Model E with the exception of wheel base 96 inches. Body latest French type for two passengers, divided front seats. Long, graceful tail box. The metal parts are lightened wherever compatible with safety. Speed 50 miles per hour.

Annular Ball Bearings are employed throughout

Agencies in certain desirable territory are still open.

Representative dealers are requested to communicate with us promptly to insure early delivery of cars.

CORBIN MOTOR VEHICLE CORPORATION

MAKERS OF CORBIN AIR COOLED MOTOR CARS

NEW BRITAIN, CONN.

4 West 38th Street, New York
43 Columbus Avenue, Boston
1406 Michigan Avenue, Chicago
115 East 7th Street, Cincinnati

THE "CROWN" DELIVERY CAR

MOTOR
2 CYCLE
2 CYLINDER
VERTICAL TYPE

WEIGHT
1650 lbs.

CARRYING CAPACITY
1200 lbs.

PRICE $1150

The only Delivery Car on the market driven by a two-cycle motor. It is a model of simplicity, has ample power, and no perceptible vibration.

Three months' continual work on the road shows every part to be absolutely perfect, and wherever demonstrated has given entire satisfaction. The body made any style to suit purchaser.

Write for full description.

Detroit Auto Vehicle Co. **Detroit, Mich.**

THE MOLINE

Model D. Light Touring Car, with Side Entrance, Detachable Tonneau.

PRICE, $1000

The success with which our Model D is meeting proves that it is the ideal combination two and four passenger rig at a medium price. Satisfied customers all over the country testify to its sterling qualities. It is equipped with a 20 H. P., two cylinder opposed motor, developing ample power for all purposes. The long wheel base and three point spring suspension makes it one of the easiest riding cars on the market. If you want to buy a thoroughly substantial and dependable light touring car, and at the same time save money, get the **MOLINE** Model D.

We have a proposition to make on this model which will be especially attractive to live dealers. Write for details.

MOLINE "Model B," 4-cylinder 25 H. P. touring car, at $1250, is the lowest-priced four-cylinder car of its class that has "made good" this season. Send for description.

MOLINE AUTOMOBILE CO. **East Moline, Ill.**

Members of American Motor Car Manufacturers' Association of Chicago

MEAD MOTOR CO., Chicago Agents

Timken "I" Beam Front Axle Roller Bearing for heavy work
From 1600 lbs., to 12,000 lbs.

THE service an axle will give, rests first, on the principle of its construction, second on how well it is made

A critical examination of any of our axles satisfies as to the first and the "test of time" and the satisfactory results obtained by hundreds of users, proves the second. If we could make them any better we would.

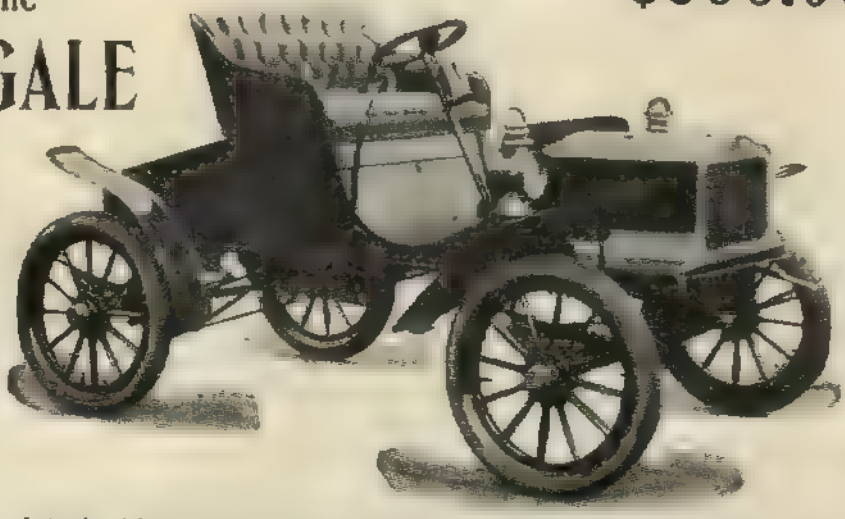
All types front axles, bevel drive and chain drive rear axles. Elliott and Lemoine Knuckles, special bearings, wheels, etc.

TIMKEN ROLLER BEARING AXLE CO.

Works and General Office . . . . CANTON, OHIO

The **GALE**

Price, $500.00



Lots of satisfaction at a small cost is what you get when you buy "THE GALE." It is not a poorly constructed machine, material and workmanship being guaranteed for one year. It has an 8 H. P., 6x6" water cooled motor, and a tilting body, which makes access to the entire machinery plant easy. Write for further particulars,

WESTERN TOOL WORKS **Galesburg, Ill., U. S. A.**

Reliable Curtain Fasteners Have NO Equal

Automobile Manufacturers!

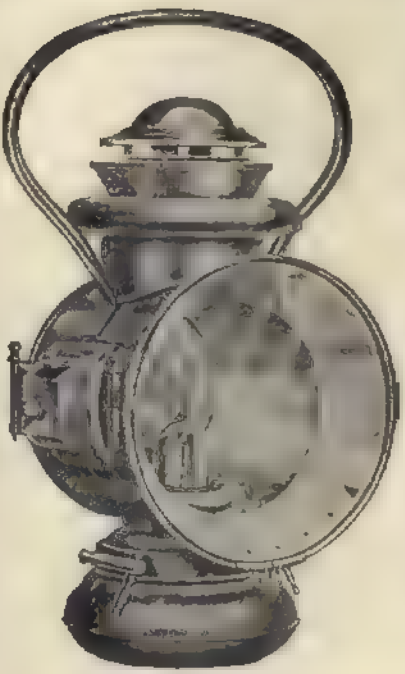
In order to have your 1906 cars present a stylish and up-to-date appearance, it is necessary that you use the proper kind of

Brass Trimmings

We are the largest manufacturers of such articles in the United States. Our product is RELIABLE, and exactly what you want. Write to-day for catalog and prices. Let us fill your 1906 order. We know you'll not regret it.

4075
Six styles of Side Door HANDLES

JOS. N. SMITH & CO.
DETROIT, MICH.
We make many articles not illustrated.



MARVELOUS!

It's the exclamation of all when they see our

Cold Blast Auto Lamps

on the road. They give by far the largest light and best satisfaction of any oil Auto Lamps made. **WHY** shouldn't we have the best when we have been manufacturing oil burning lamps for thirty-five years, and the fruit of our entire experience is put into our Auto Lamps.

THAT'S WHY our lamps give the most light, are absolutely wind proof and will not jar out. Have you seen our new idea in a tail lamp?

WRITE FOR COMPLETE BOOKLET

C. T. HAM MFG. CO.
ROCHESTER, N. Y.

All motors from 2½ to 15 H. P. are furnished with two sets of batteries and spark coil; from 15 H. P. up they are furnished with a magneto and one set of batteries.

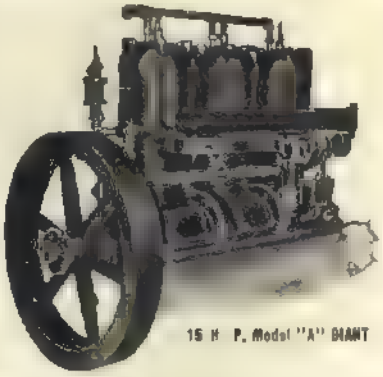
The exhaust pipe on the Doman motor is cooled by water from the jacket on cylinders so arranged that it does not require any attention. The exhaust pipe is carried along under the floor of boat and run out at stern just under water line. There is no muffler used on the Doman motor.

All Doman motors are supplied with the Doman vaporizer, which has been in use by this firm for two years and has given the best of satisfaction. In the Doman vaporizer no air is heated, but the gasoline is heated by hot water from the water-jacket on the motor. The Doman vaporizer contains no springs and requires no adjustment. When needle valve is once set, it is sufficient for speeds of motor or engine from 100 to 1500 revolutions per minute.

One of the Doman vaporizers is sufficient for a 5x5-in. 6-cylinder motor running at 1000 revolutions per minute.

The award committee of the Lewis & Clark (Portland) Exposition has awarded the gold medal to Truscott Mfg. Co., of St. Joseph, Mich. for launches and marine engines.

A committee has been appointed by the Oswego (N. Y.) Yacht Club to consider the advisability of erecting a new motor-boat house, at a cost of about $2500.



15 H. P. Model "A" GIANT

Many engines run well, but are heavy

Others are light, but unreliable

GIANT ENGINES are not only light, but run reliably and wear well

E. H. GODSHALK & CO.

Twenty-third and Hamilton Streets

Philadelphia, Pa. - U. S. A.

Member of National Association of Engine and Boat Manufacturers

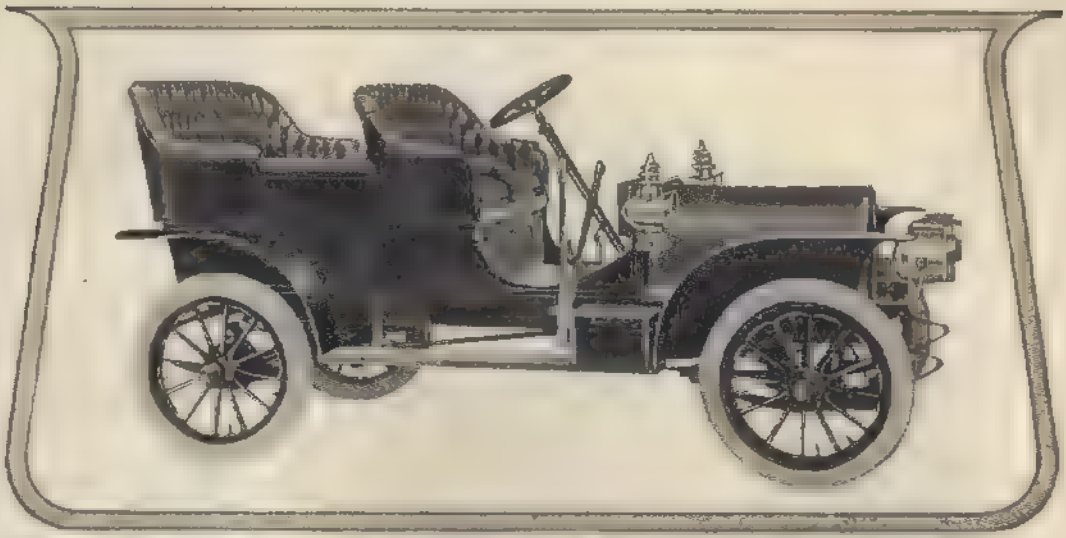
"Favorite" Bicycles

Adult and Juvenile For 1906

Our proposition will convince you where to place your business

The Fittest has Survived

THE TOLEDO METAL WHEEL CO. TOLEDO, OHIO



FRANKLIN

Type G 4-cylinder Light Touring Car

[illegible] New and perfect disc clutch Force-feed oiler on the [illegible] 3 miles an hour 12 "Franklin horse-power." 2400 pounds. $[illegible] Syracuse [illegible]

Franklin Air-cooling
and
Franklin Horse-power

Why does 12 "Franklin horse-power" do all that 20 horse-power will do in any other car?

Because Franklin air-cooling means also Franklin engineering, lightness, strength and springs.

No plumbing weight nor complications. Little engine-metal, but great strength and refinement in it; great power out of it; and the power preserved and put to work.

Few parts, small friction; extreme toughness; a light load to carry; no interference; and big ability to carry it.

You want the power that does the work.

Four models for 1906. **E, 4-cylinder Runabout,** 12 "Franklin horse-power," 1100 lbs., $1400 f. o. b. Syracuse. **G,** [illegible] **D, 4-cylinder Touring Car,** 20 "Franklin horse-power," 1800 lbs., $2800, f. o. b. Syracuse. **H 6-cylinder Touring Car,** 30 "[illegible] horse-power," 2400 lbs., $4000, f. o. b. Syracuse.

Send for books.

H. H. FRANKLIN MFG. CO., Syracuse, N. Y., *U. S. A.*

The Motor Car of the Future

1 H. P. Style D Price, $1125 00
Double Opposed Motor

The Glide

The Car that Glides

Our 1906 Models are now ready and the line consists of

8 h. p. Single Cylinder Touring Cars and G idesbouts
14 h. p. Two Cylinders opposed Touring Cars and Glidesbouts.
18 h. p. " " " " " " "
30 h. p Four " vertical " " " "

We have a few desirable agencies open for those who wish a complete line of cars selling at moderate prices *Don't pass the Glide line for your trade will hear of these cars and when once introduced they will be as popular in your section as they are in other sections.*

THE BARTHOLOMEW CO., 411 Bradley St., Peoria, Ill.
Members American Motor Car Manufacturers Association, Chicago

MONARCH

AGENTS

E. P. Blake, 25 Hawkins St., Boston, Mass
Joseph S. Heller, 1779 Broadway, New York City
D. L. Mulford, 514 N. Broad St., Phila., Pa
Auto Supply & Storage Co., 1416 Madison Ave., Baltimore, Md
Upton Funk, Shippensburg, Pa.
Fred K. Martin, Perth Amboy, N. J.
Ohio Pail Co., Middlefield, Ohio.
Union Automobile Co., 4601 Olive St., St. Louis, Mo.
Carl W. Hayes, Lexington, Mo.
Hayden Automobile Co., 1337 Michigan Ave., Chicago Ill.
Gage Brothers, Lakefield, Minn.
A. W. Petersen, 320 W. 3rd St., Davenport, Ia.
Moore Auto Co., Lincoln, Neb.
Geo. E Bartoo, 409 1st Ave., Spokane, Wash.

7 H. P. Air-Cooled Runabout

SIMPLE EASY RUNNING **ALL PARTS ACCESSIBLE**

Speed 4-22 Miles per Hour on High Speed Clutch. Body Rides on one set of Springs. Machinery on another. Planetary Transmission Two Speeds Forward and one reverse. All Speeds Operated by one Lever.

PRICE OF RUNABOUT, $500 **PRICE OF RUNABOUT, With Top, $50 Extra**
Our Air-Cooled Engine is Absolutely Guaranteed. Immediate Deliveries

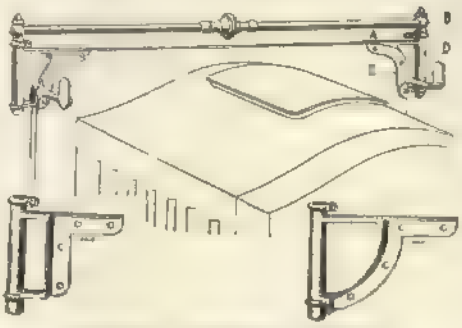
MONARCH AUTOMOBILE CO.
AURORA, ILLS.

It is the Finishing Touches Which Count

THE automobile manufacturer who is able to build a car which pleases the eye of the prospective buyer, accomplishes as much as the arguments of the most fluent salesman. This is one of the many reasons why it is an advantage for you to equip your cars with our **RELIABLE BRASS TRIMMINGS,** which in style, quality and finish are unsurpassed.

OUR LINE COMPRISES

HINGES
HANDLES AND LOCKS FOR SIDE DOORS
LOCKS FOR SMALL DOORS
TAIL GATE HANDLES ETC.

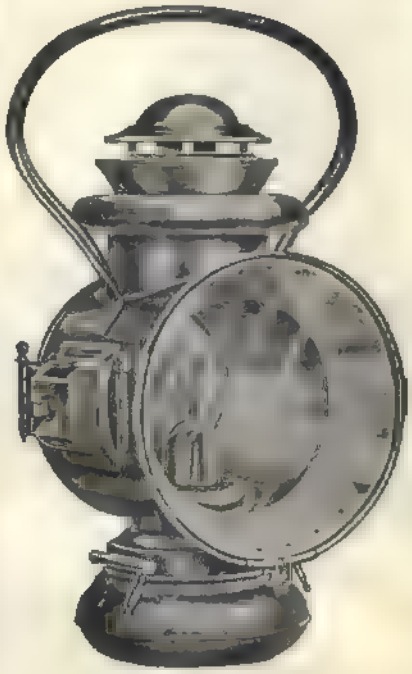


DASH RAILS
DECK RAILS
SEAT HANDLES
WIND SHIELDS
LAMP BRACKETS
CURTAIN FASTENERS ETC.

SEND FOR ILLUSTRATED CATALOG

Let us know your wants, and we will give you quotations. No order too large or small to receive attention.

JOS. N. SMITH & CO., Fourth and Porter Sts., DETROIT, MICH.



The Ham Cold Blast Auto Lamps

represent all that is best in oil burning lamps.

Handsome in appearance
Strongly constructed
Absolutely wind proof
Will not jar out and
Gives by far the most light

Write for our interesting booklet that will tell you all about

The Lamps that Light the Road

C. T. HAM MFG. CO.
ROCHESTER, N. Y.

FOR AUTOMOBILE

HARRIS OIL

LUBRICATION

DEALERS—TAKE NOTICE!

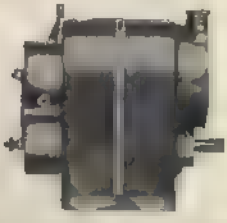
HARRIS OILS during 1906 will be more generally **demanded** than any other oils on the market. This demand will be caused by the ever increasing number of users who have learned Harris Oils value and recommend their use to their friends, and by liberal advertising in years past, and which will be continued more widely in 1906.

WRITE US AND MAKE YOUR ARRANGEMENTS NOW FOR 1906 SUPPLIES, STATING QUANTITY YOU WILL PROBABLY USE.

A.W. HARRIS OIL CO. 333 S. WATER ST. PROVIDENCE, R.I.

THE HOLLEY MAGNETO

HUFF SYSTEM



Price, $135.00 complete

This is a sem. high-tension magneto the system of wh ch is radically d fferent from any mach ne now n use Patents ha.e been app.ed for .n seven countries It operates with a condenser and spark coil. We claim the following:

It is the on y mach ne that w.l build up the magneto and make the machine stronger after a year's use than when new. This we have proven by actual experience.

It uses one spark coil w th tremo er, which works with battery and STOPS when magneto operates thereby giv ng a vibrat ng spark tc start on and sing e spark wher magneto operates, making the timing absolutely correct.

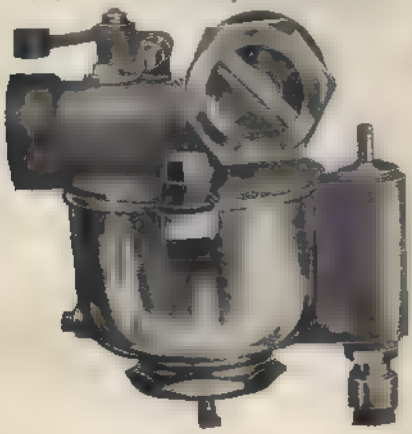
It is the simplest system in existence, BARRING NONE.

Water and dust proof.

The magneto w.l increase the horsepower from six to ten per cent. on account of the spark being so much hotter than a spark from the spark coil.

It is not necessary to change the lead on the spark when the magneto s n use, as the spark gets proportionately hotter as the speed increases.

We will produce 3 000 this seasor. 1 000 of which have been so d to a manufacturer, who has tested several samples on the road continuously for six months.



HOLLEY CARBURETORS

have been adopted and are used exclusively by the largest and most successful automobile manufacturers in this Country, including the Winton Motor Carriage Co., Olds Motor Works, Ford Motor Co., E. R. Thomas Motor Co., Wayne Automobile Co., Mitchell Motor Car Co. and many others. Price of top or side outlet with standard pipe connections,

¾ inch	$11 50
1 " gasoline outlet . .	12.00
1¼ " " " . .	13.00
1½ " " " . .	14 00

Increase the power of your car by attach.ng one of the following special carburetors

Oldsmobile Runabout	$12 00	Northern, Runabout . . .	$12 50
" Tonneau Car	11.50	" 2-cylinder Touring Car . .	14.00
" Touring Runabout	11.50	Franklin 4-cylinder Runabout,	
Ford 10 H.P., Model C	11.50	10 and 12 H.P. . . .	12.00
Winton, Mode B and C	18 00	Two-cylinder Buick . .	14 00
Cadillac, single cylinder	13.50	8 H. P.	13.00

Write for part culars concern ng specia carburetor for the Orient Buckboard, a so our new motor cycle size. Price, $11 00

Our new heater attachment for Ford 'F' cars is ready Greatly increases the efficiency of the car during cold weather. Price, $5.00

Write for full information. Circular A sent on request.

HOLLEY BROS. CO., 668 BEAUBIEN ST. DETROIT, MICH.

A Dry Battery made especially to meet the exacting requirements of ignition for automobile motors.

If you've had ignition troubles try the "1900 Special" cell. It will cure them.

If your battery expense has been high, the "1900 Special" will reduce it. Not because it's cheap, but because it's good.

Lock nuts prevent loose connections.

E. M. F. . . . . 1.5 Volts.
Current . . 18 to 20 Amperes

THE NUNGESSER ELECTRIC BATTERY CO. Cleveland
Gen'l Sales Office, 128 W. Jackson Blvd. Chicago

The "Breech-Block" Plug

MADE BY

EARL CANEDY
CHICAGO HEIGHTS
ILLINOIS

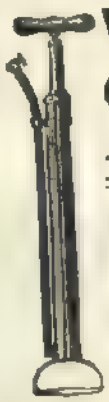
$2.50

SOLD BY

JACOBS & KING
46 Columbus Ave.
BOSTON

W. R. JOHNSTON & CO.
1336 Michigan Ave.
CHICAGO

IMPERIAL-WIXON COMPOUND AIR PUMP



gives the greatest pressure with the least exertion.

The fastest and easiest working automobile tire pump.

Don't be bothered with tire troubles.

PATENT ALLOWED Get an Imperial-Wixon.

$5 on approval.

Try it before you buy it. Fair, is it not? Write for circular.

IMPERIAL BRASS MFG. CO.
242 So. Jefferson St., Chicago.
MOTOR CAR-EQUIPMENT CO., 55 Warren St., New York
Sole Export Agents

Portable Hoist

Made of Steel—Light, Strong, Durable

One man alone can operate with load, moves easy.

Automobile manfrs. Garages, find this the right thing. Lifts any portion of automobile, remove engine, and such like

Greater convenience as hoist and truck than stationary block and hoist or trolley

Takes the place of traveling crane and trolley, more accessible to all parts of plant A good truck.

Invaluable in repair department.

Six standard sizes Capacities 1000 to 6000 pounds.

Prices right.

Ask for further particulars

Patent pending

WM. S. NICHOLLS
253 Broadway New York

DEOXIDIZED
ALUMINUM
CASTINGS
BETTER THAN FRENCH ALUMINUM
BRIDGEPORT DEOXIDIZED
BRONZE AND METAL CO.
BRIDGEPORT, CONN.
DEOXIDIZED
PHOSPHOR-BRONZE
FOR
BEARINGS
AND GEARS.
TWO GRADES.

TAPER SOCKETS
AND SHANKS

The best possible support for Canopy and Cape Tops. Made from ¾ inch round steel. Used extensively by the largest top manufacturers.

ALSO HEAVY SHIFTING RAILS
TOP JOINTS AND BOW SOCKETS
FINISHED CANOPY TOP STANDARDS
MADE TO PATTERN

Cortland Forging Company
CORTLAND, NEW YORK

DUANE'S HIGH GRADE

Cape Tops
Wind Shields
Slip Covers
Adjustable Tire Irons

For Carrying One or Two Tires
Made in Brass or Painted

Phone 4770 } Columbus
4771 }

W. J. DUANE & CO.
Office and Factory 304 W. 54th St. N. Y.
Salesroom 1771 Broadway

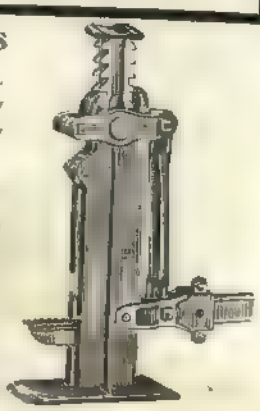
Peerless Automobile Jacks

A model of simplicity, durability and strength. Raise by working handle below center; lower by working handle above center. Works at any angle. Can not slip or drop.

Most Popular Auto Jack on the Market.

	Height	Rise	Weight	Price
No. 15—For vehicles of 2 tons.	10-in.,	7-in.,	4¾-lbs.	$2.50
No. 18—For vehicles of 2 tons.	11-in.,	6-in.,	7-lbs.	3.00
No. 16—For vehicles of 3 tons.	13-in.,	8-in.,	9-lbs	4.00
No. 21—For vehicles of 12 tons,	13⅝in.,	7-in.,	22-lbs.	6.00

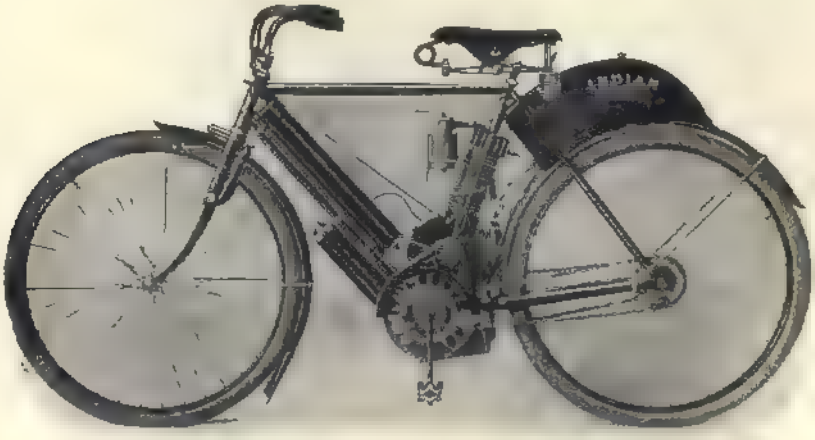
OLIVER MANUFACTURING CO.,
202 S. Desplaines Street, Chicago, Illinois



In 1905

The Indian

Won



EVERY NATIONAL CHAMPIONSHIP

EVERY HILL CLIMBING CONTEST

Except half of one

EVERY ECONOMY TEST

THE MILE RECORD

13 Medals in the F. A. M. Endurance Contest

and an overwhelming majority of minor races and other events.

In previous years, its record was as impressive. For instance, in 1903 and '04 it won the only gold medals offered in the national endurance contests and also the only gold medal awarded motorcycles by the St. Louis Exposition.

LUCK plays no part in such remarkable and long sustained performance in public competitions. The moral is obvious.

HENDEE MFG. CO., SPRINGFIELD, MASS.

JACKSON

Announcement

In introducing our line of automobiles to the trade and public for the 1906 season, we point with pride to the achievements of our Model "C," introduced in 1905, a car which has given universal satisfaction.

Our line for the coming season will consist of three cars:

Model "C," Price, $1250.00

The motor is of the two cylinder opposed type, 5½ inch bore, 5 inch stroke. Planetary transmission. First-class equipment throughout.

Model "D," Price, $1500.00

Motor is of the opposed type, placed crosswise under the hood, 5½ inch bore and 5 inch stroke. It is cooled without pumps or fans. Transmission of the planetary type. First-class equipment throughout.

Model "G," Price, $2500.00

Motor, four cylinder type, 5 inch bore, 5 inch stroke, developing 40 H. P. Cylinders cast separately, heads integral. Transmission, sliding gear, made by the Brown Lipe Gear Co., oil and dust-proof. Three speeds forward and reverse. Wheel base 108 inches, tread, 56 inches. Gasoline capacity 18 gallons. Excellent workmanship and finish.

Each car is a leader in its field, and the line is complete enough to guarantee any agent a satisfactory business. Jackson cars are noiseless, stylish, powerful and fast, and being well made, of the best materials, they render the maximum service for the minimum cost of up-keep. They unquestionably represent the best value on the American market to-day for either the dealer or buyer. It is possible to spend more for cars of the same type, but it is not possible to get better at any price.

CORRESPONDENCE SOLICITED

Jackson Automobile Co.

JACKSON, MICH.

1000 Miles Without a Single Adjustment

Won the Glidden Trophy for the

PIERCE

There can be no more conclusive proof of the superiority of the Pierce Great Arrow chassis for touring purposes. An American car for American roads—the Pierce is the triumphant result of six years' experience with the finest materials and a thorough knowledge of American conditions.

THE GEORGE N. PIERCE COMPANY

Buffalo, N. Y.

Manufacturers of Pierce Cycles

Members of Association of Licensed Automobile Manufacturers

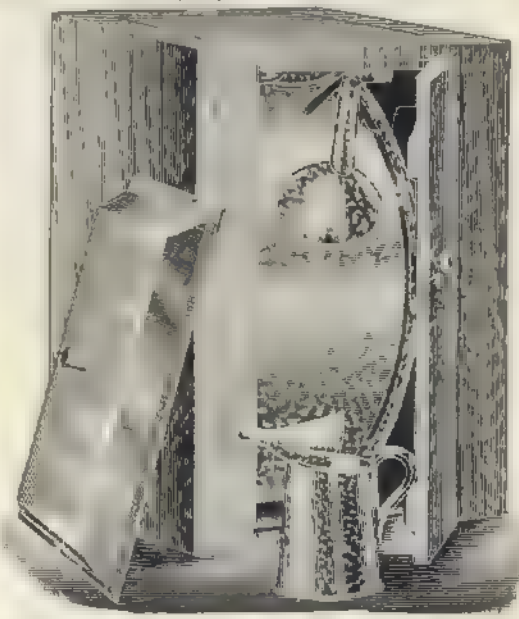
SELF-SEALING AUTO TANK

NO leaking spout or faucet NO dripping NO pump to get out-of-order NO waste

The cut shows the strong wooden box in which the can is placed and in front of which is a hinged door with a strong lock. On top of the box is a removable door into which the galvanized filling pan-funnel fits closely

The barrel of gasoline is rolled upon skids to the top of the frame, the bung removed and the tank filled

The tank can be set out of doors



away from house and barn.

A funnel measure — which also is shown in the cut — goes with each tank

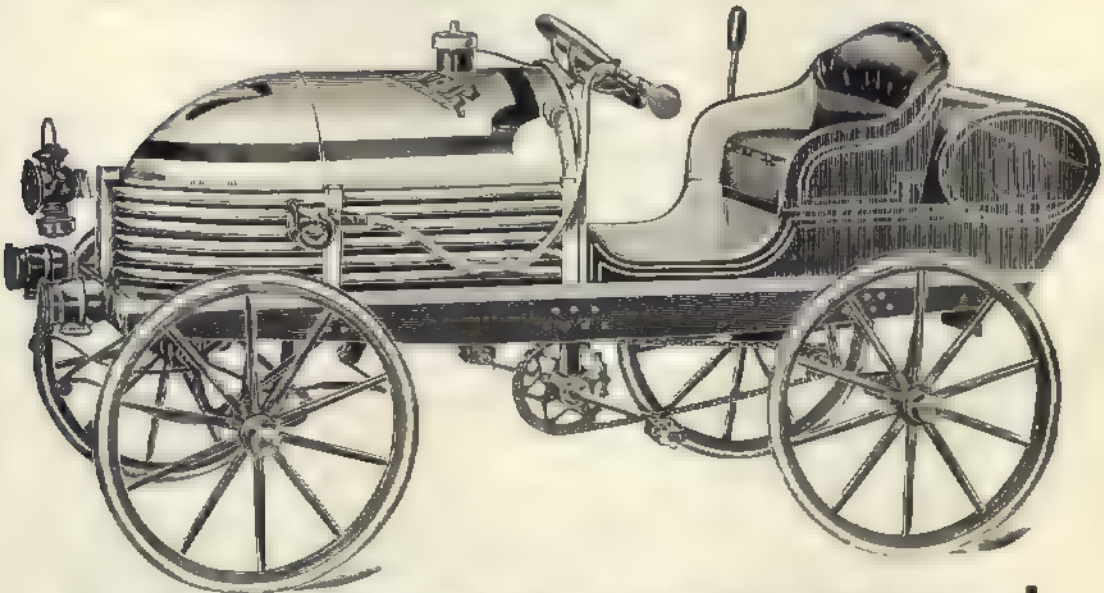
A Perfect Pourer

Nothing like it on the market.

NET $15 EACH Freight Prepaid.

This can is the result of demand from Auto Users for a Secure, Wave-Protected Practical Can for containing gasoline

Manufactured by BROWN OIL CAN CO., Toledo, O.



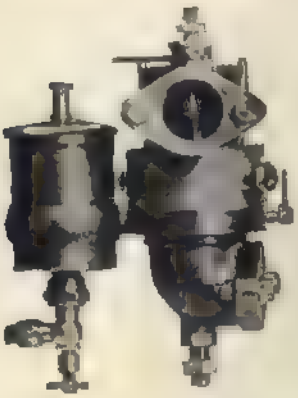
Juvenile Foot and Hand Propelled Vehicles

The Real Thing. One of Forty Varieties

Bicycle and Automobile Dealers can add a Side Line that will not only help profits but give them a great deal of good advertising. Ours is the leading and only complete line We are making more "Favorite" Adult and Juvenile Bicycles this year than ever before. Our Bicycles and Prices are right.

THE TOLEDO METAL WHEEL CO., Toledo, Ohio

The King Carburetor



In an emergency, a clever mechanic could run his gasoline engine (after a fashion) with a **SQUIRT CAN.** Some carburetors do no better than a squirt can.

Anything fit to be called a carburetor should show an increase in efficiency of from 20 to 30 per cent. over that of the squirt can. That's easy.

We challenge any carburetor maker to prove even the smallest measurable increase of power over that developed by the King Carburetor, and applied to the same engine.

99 per cent. of the carburetors made cannot even approach the efficiency or economy of the King Carburetor. The King Carburetor does everything claimed for any other make and **IN ADDITION:**

The King has but ONE air-inlet, protected by a long supply-pipe.

The King delivers the fuel through 12 or 18 fine capillary tubes as against the ONE squirt-hole of other makes. Which gives the better mixture? You know.

The King has NO exterior air holes in dash-pot to clog with dust and stall carburetor.

The King has sediment-pocket and gauze-filter at bottom of tank—where it belongs.

The King does NOT flood, but

Starts at first turn of crank.

Heater-jacket enables use of poor fuels, such as you are liable to get away from home.

A deluge of water over the King will not stop it.

The King continues to work under exposure to a sand-blast, let alone dust.

All connections on the King can be rotated axially for adaptation to any type of automobile, launch or stationary motor.

When spray-plug and dash-pot of the King are **ONCE ADJUSTED** the King remains so for all times. It need **NEVER TO BE TOUCHED AGAIN.**

Send postal for catalog.

THE BRADFORD MOTOR WORKS

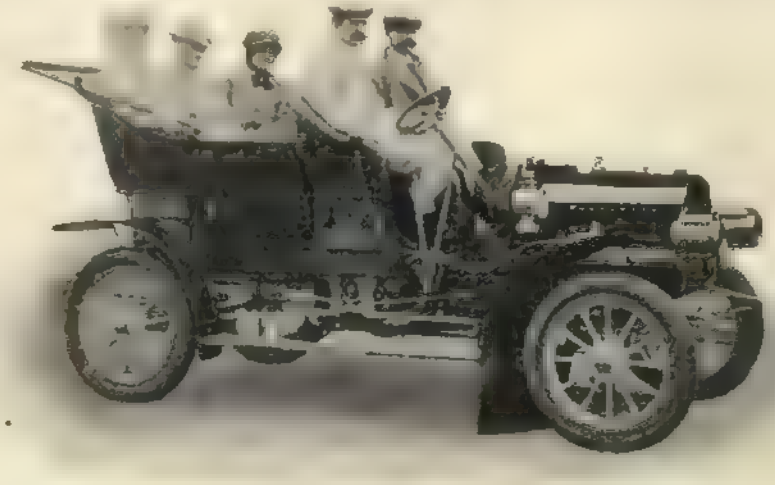
will send the King Carburetor on Trial, to any responsible concern. If, after a reasonable time, The King Carburetor fails to produce BETTER RESULTS than could be obtained with ANY OTHER CARBURETOR, the Bradford Motor Works will, without question, take back such carburetors. Each carburetor is sent out with explicit directions for installing. These must be followed to produce BEST results.

Bradford, Pa., Motor Works

The Logan 1906 Cars

The 1906 model of the Logan gasoline car made by the Logan Construction Co., of Chillicothe, Ohio, has been thoroughly tried out by their general manager and designer, Mr. B. A. Gramm, and the first 100 cars will soon be put through the factory. This car is equipped with a 30 H. P. Logan opposed engine sliding gear transmission, 2-speed forward and reverse, and is constructed along the same general lines of their 1905 product. They have, however, added a transmission brake, changed the throttle to the steering mast instead of the front pedal, made the seats very much wider, and increased the wheel base of the car to 100 inches. The price of the 1906 Logan has not yet been definitely fixed, but will probably be about $1000, same as their 1905 car.

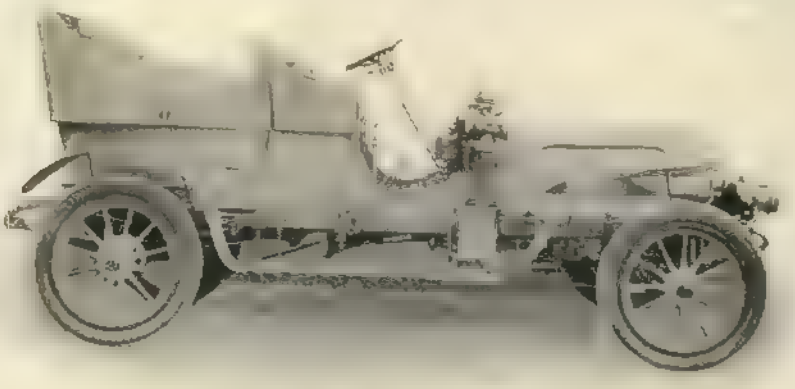
A noteworthy feature of the Logan car, retained in the 1906 model, is the use of an aluminum crank case. They are perhaps alone as builders of a 2-cylinder opposed engine with an aluminum crank case, and they have found it entirely satisfactory. It enables them to build a very light engine and to make the crank case in 3 separate parts, so that main bearings can be removed, or the cam gears taken off without dismantling the engine. All working parts of the Logan engine are very easy of access.



The first 1906 Logan Gasoline Car

The 1906 "Chicago" Steam Car

Chicago Automobile Mfg. Co., 4212 State street, Chicago, Ill., are ready with their 1906 model, which is shown herewith. This car seats 5 and has a wheel base of 108 inches. The tread is 55½ in. and it is fitted with 32x4-inch Dunlop tires. The engine is rated at 20 H. P. and the car weighs 2000 lbs., tanks filled. An 18-gallon water tank and a 15-gallon fuel tank are provided. The body is of the side entrance type, with detachable tonneau, and is detachable from the pressed steel frame. Mahogany is used in the dash and the panels beneath the seat. The equipment includes two 6-inch lens mirror gas lamps, two dash oil lamps and one oil tail lamp, besides a horn.



The 1906 "Chicago" Steam Car. Price $.500

THE FAMOUS FRICTION DRIVE CAR

THE LAMBERT

A Car that will always Give Service

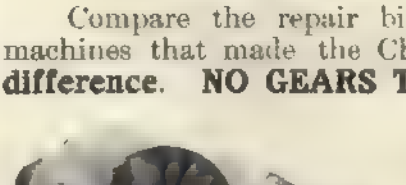
The First Gasoline Car to Arrive in St. Paul

GUARANTEED FOR ONE YEAR

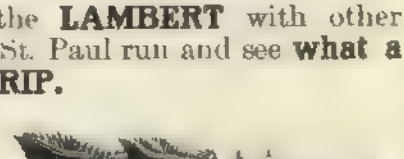
GUARANTEED FOR ONE YEAR

Model 6-16 H. P. $1350. Top Extra

Compare the repair bill of the **LAMBERT** with other machines that made the Chicago-St. Paul run and see **what a difference. NO GEARS TO STRIP.**



A Noiseless Transmission.



Model 7. 28-32 H. P. $2000.

We can make Quick Delivery

We manufacture five different models. Style, finish, material and workmanship are unequalled. THE BEST LINE on the market FOR THE AGENT. Write for particulars, catalogue, terms, etc. Manufactured by

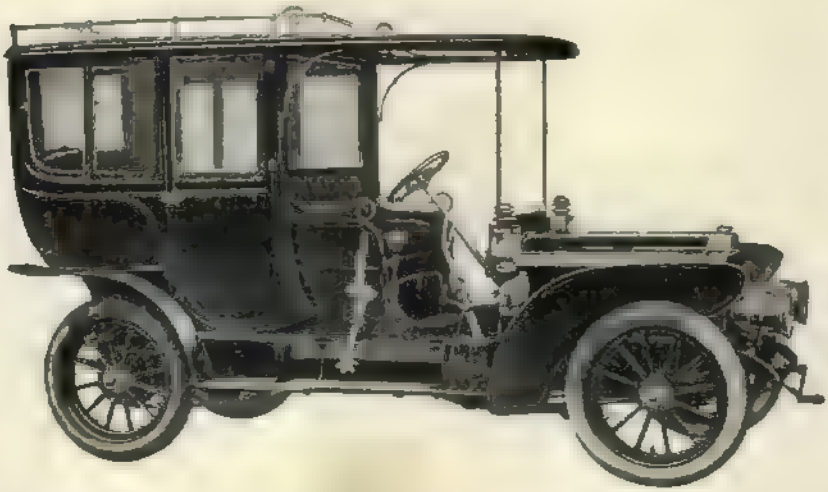
The Buckeye Mfg. Co., Anderson, Ind.

Members American Motor Car Manufacturers' Association, Chicago.

Columbia Automobiles

For Fall and Winter Use

SHOULD BE ORDERED NOW



Columbia 35-40 H.P. Gasolene Cars with Limousine or Landaulet Bodies.

The most perfect closed gasolene vehicles, superbly finished inside and out. Every improved feature that has yet been devised for comfort and convenience.

Columbia Electric Broughams, Landaus, Landaulets, Hansoms, Private Busses.

Sold for private service only. The most efficient and luxurious electric town vehicles produced in this country or abroad. New styles for 1905-6.

Separate Catalogue and Price Lists of Gasolene Cars and Electric Carriages sent on request.

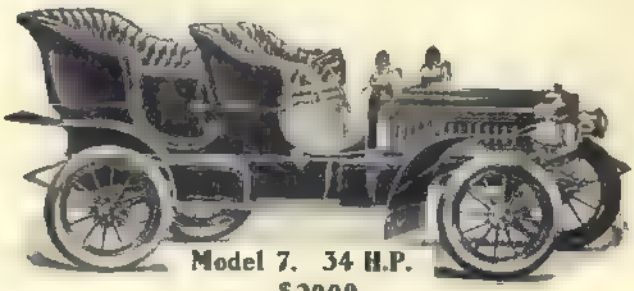
Electric Vehicle Company

HARTFORD, CONN

NEW YORK BRANCH—134, 136, 138 West 39th St. CHICAGO BRANCH—1413 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., 74, 76, 78 Stanhope St.
PHILADELPHIA—Pennsylvania Electric Vehicle Co., 250 N. Broad St.
WASHINGTON—Washington E. V. Transportation Co., 15th St. and Ohio Ave.
PARIS: S. Bianchi, 194 Boulevard Malesherbes

Member Association of Licensed Automobile Manufacturers

THE LAMBERT



Model 7. 34 H.P.
$2000

Our line is complete. We will make the following models for the season of 1906

MODEL A—16 H. P. Runabout	List $	900
MODEL 4—Side entrance touring car	"	1050
MODEL 5— " " " "	"	1200
MODEL 6— " " " "	"	1500
MODEL 7— " " 4-cylinder car	"	2000
MODEL 8 – " " 4- " "	"	3000

Our Transmission

We also are manufacturing a line of trucks.

Write for our Latest Catalogue describing in detail all of the above models.

The Buckeye Mfg. Co.

Anderson, Indiana

Members American Motor Car Manufacturer's Association Chicago

ROYAL TOURIST

POINTS

Runs quietly. Costs less for repairs than any motor car built anywhere. Steers easily. Perfect control of motor. Certainly is fast. Is built with care.

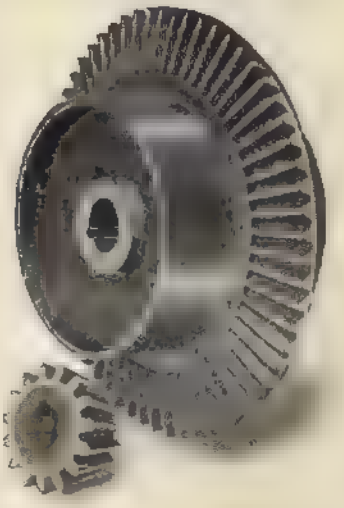
We have a full description of 1906 model ready to mail to you if you will send us your address. Will also mail booklet explaining performance of '06 model in Vanderbilt Trial Race.

The Royal Motor Car Co.

CLEVELAND, OHIO

AGENTS: C. A. Duerr & Co., New York, N. Y. G. J. Dunham, Boston, Mass. The McDuffee Automobile Co., Chicago, Ill. G. W. Caplin, Minneapolis, Minn. Automobile Supply Co., Ltd., Toronto. Motor Shop, Philadelphia, Pa. Westminster Automobile Co., St. Louis, Mo. Standard Automobile Co., Pittsburg, Pa. Amos Pierce & Co., Syracuse, N. Y. Thompson Schoeffel Co., Rochester, N. Y. Member A. L. A. M.

BROWN-LIPE GEARS



Differentials for chain and shaft drive

Back lock steering

Sliding gear transmissions

Catalogue and Blue Prints

PETERSON & DRAPER, 66 Lake St., Chicago
THOMAS J. WETZEL, 11 Warren St., New York, Direct Factory Salesmen
CHAS. B. MILLER, 97 Reade St., New York,
318-320 N. Broad St., Philadelphia,
202-4 Columbus Ave., Boston,
406 Erie St., Cleveland, Ohio
} Sales Agent, Carrying Stock.

POST & LESTER CO., Hartford, Conn., Eastern Sales Agents

BROWN-LIPE GEAR COMPANY, 206 S. Geddes St., Syracuse, N. Y.

LEATHER NUMBER PLACARDS
AND
LEATHER COVERED FENDERS

McKinnon Dash Company

TROY, OHIO CINCINNATI, OHIO BUFFALO, N. Y. ST. CATHARINES, ONTARIO

Locomobile

Easily the Best Built Car in America

The performances of models on test during the past few months indicate that our product for 1906 will place our reputation for manufacturing high-grade and reliable touring cars higher than ever. Our two new styles are almost identical in design, are constructed with equal care throughout, and are in every way the finest cars that our efforts can bring forth the result of four years' careful and consistent manufacture of the four-cylinder type of touring car now everywhere recognized as standard. The new ***Locomobiles*** are as follows:

A MODERATE POWERED TOURING CAR, TYPE "E"
15-20 H. P. $3,000 Complete

A HIGH POWERED TOURING CAR, TYPE "H"
30-35 H. P. $5,000 Complete

Type "E" *Locomobile* 15-20 H. P.

Four-cylinder motor, 3¾" x 4½"; large, mechanical lubricator automatic carburetor with balanced throttle valve; positive governing action, make-and-break ignition with low tension magneto of our own design and manufacture iridium make-and-break surfaces. Control levers on top of steering wheel. Double universal joint. Large, powerful brakes. "I" section hand-welded axles. Wheel base, 98". Price, $3,000, with 5 lamps, top irons, tire carrier, box for tools and lubricants, extra parts, and complete set of tools.

Type "H" *Locomobile* 30-35 H. P.

Four-cylinder motor, 4½" x 5½"; large, mechanical lubricator; automatic carburetor with balanced throttle valve; positive governing action; make and-break ignition with low tension magneto of our own design and manufacture iridium make-and break surfaces. Control levers on top of steering wheel. Double universal joint. Large, powerful brakes. "I" section hand-welded axles. Wheel base, 106". Price $5,000, with 5 lamps, top irons, tire carrier, box for tools and lubricants, extra parts and complete set of tools.

A folder of preliminary specifications sent on application to our factory or any branch office.

The *Locomobile* Company of America, Bridgeport, Conn.

NEW YORK, Broadway and 76th St
PHILADELPHIA, 239 N. Broad St.
Member Association of Licensed Automobile Manufacturers
BOSTON, 45 Berkeley St.
CHICAGO, 364 Michigan Ave.

Columbia

Electric Town Carriages

NEW MODELS NOW READY

The cut shows the new Columbia Electric
Brougham, Mark LXVIII with Lightened Construction
Pneumatic Tires, 5-Speed Control, Special Exide
Battery and other Improvements
With same Chassis we supply Landaulet, Hansom and Victoria Bodies

Send for Bulletin No 75

Electric Vehicle Company

HARTFORD, CONN.

NEW YORK BRANCH 134, 136, 138 West 39th St. CHICAGO BRANCH—1413 Michig n Ave.
BOSTON—Co umbia Motor Vehicle Co., 74, 76, 78 Stanhope St.
PHILADELPHIA—Pennsy vania Electric Vehicle Co., 250 N. Broad St.
WASHINGTON Washington E. V. Transportation Co , 15th St. and Ohio Ave.
PARIS: S. Bianchi, 194 Boulevard Malesherbes

Member Association of Licensed Automobile Manufacturers.

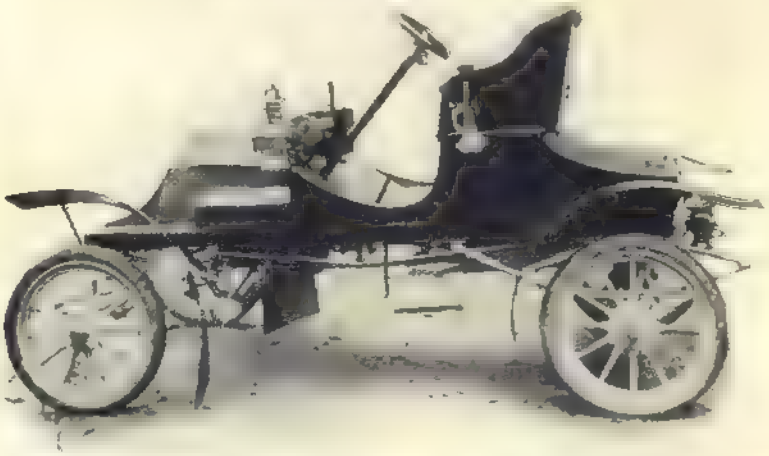
Logan

Air and Water Cooled Cars

For the Season of 1906

6 DISTINCT MODELS 6

AIR COOLED RUNABOUT



MODEL F—10 H. P. Weight, 1400 lbs. 2 cylinder opposed in front under hood. Sliding gear transmission. Chain drive.

THAT CAR OF QUALITY AIR COOLED LIGHT DELIVERY

Carrying capacity 1500 lbs. up or down hill

Speed, one to fifteen miles per hour

Touring Cars 20 and 30 H. P.

Our descriptive catalogue and prices for the asking

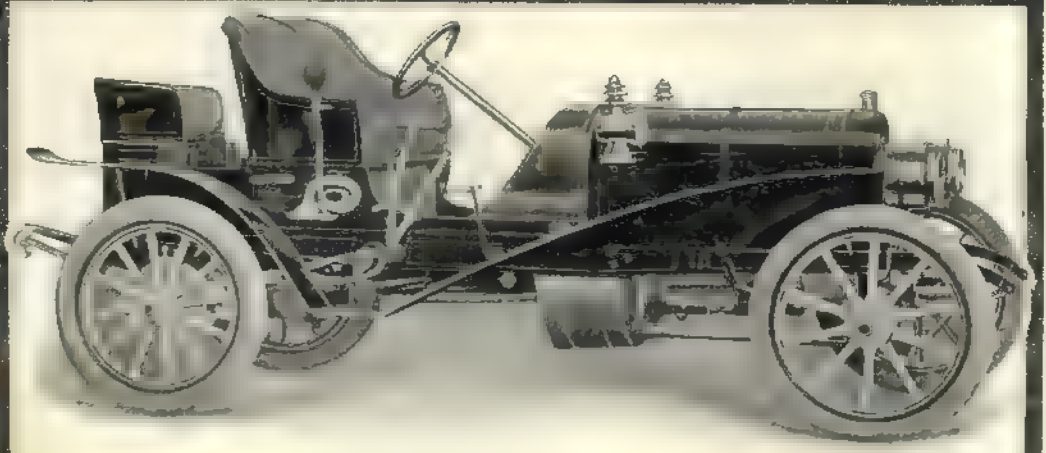
MODEL 1 -10 H. P Weight, 1050 lbs.

Logan Construction Co.

CHILLICOTHE, OHIO, U. S. A

Logan 1½ Ton Truck another story.

Packard



Before the design of the "Packard 24" was accepted by the Packard Company, three cars were built and driven 21,000 miles over every kind of road and grade that exists between Michigan and Massachusetts.

Packard Motor Car Co., Dept. 11

Member Association Licensed Automobile Manufacturers

Detroit, Mich.

New York Branch 1640 Broadway

CASTINGS

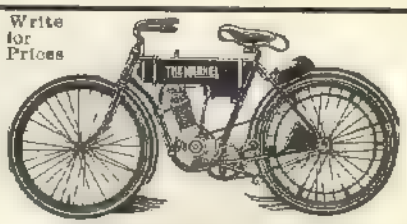
Manufacturers

we can furnish you with the best castings in aluminum, phosphor-bronze and brass, made true to patterns and minus imperfections Let us figure on your 1906 equipment.

PIONEER BRASS WORKS

416 S. Pennsylvania St., Indianapolis, Ind.

Write for Prices



MERKEL Motor Cycle

Our shipments since January have been exceptionally large. The Merkel is an easy seller with a big round profit for the dealer They never disappoint the rider. Write for full information to-day.

MERKEL MOTOR CO. 1098 26th Ave., Milwaukee, Wis.

FACTORY Layton Park

SMOOTH SOUND CASTINGS

for Marine, Automobile and General Work of

Aluminum
Bronze
Composition
or Brass

Any Mixture Required

J. B. CHAPMAN & CO.

62 Taylor Street Springfield, Mass

Bonnets, Radiators, Mud Guards, Tanks and Forged Irons.

HAYES MFG. CO.

SUCCESSORS TO

Wilson & Hayes Mfg Co., DETROIT, MICH.

Cor. Mack and Bellevue

BEST HUBS MADE

Thousands of Jobbers Dealers, Manufacturers and Riders say so too

E. T. HARRIS

531-545 West 15th St., Chicago

Harris Adjustable Repair Cones, Hexagon Nuts and Axles, Bulky Hubs, Motor Cycle Front Hubs, B. B. Attachments, etc., etc.

All goods Jobbers handle

Our "Sta-Rite" Porcelain Plugs are the best made with porcelain insulation. Our new Mica Plug is best with mica. Because we study

MOTOR CONDITIONS

and provide for them We can suit your motor. Sizes. Get new circular at once

The R. B. HARDY CO.

225 West Broadway New York

½ in. Porcelain, $1.00 ½ in. Mica, $1.75

The Whitlock Cooler

Used by the leading Automobile Builders

Manufactured by

The WHITLOCK COIL PIPE CO.

Hartford, Conn.

Auto, Carriage and Bicycle Tires at surprisingly low prices.

Genuine French Horns in various sizes also at exceptionally low prices.

We also again beg to remind the trade that having bought out the entire bicycle stock of Peter A. Frasse & Co., 94 Fulton St., New York City, we are in a position to sell all kinds of bicycle sundries below the Standard Value.

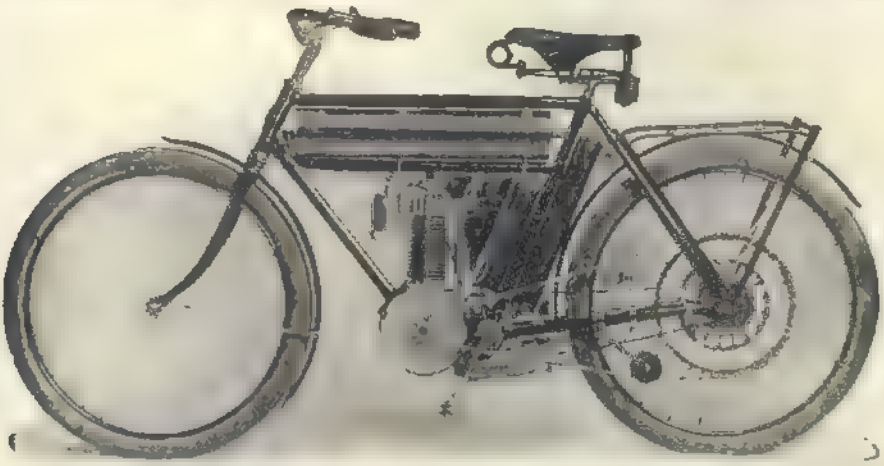
All Kinds Heavy Fittings for Motor Cycles.

PROGRESSIVE CYCLE & AUTO SUPPLY CO.

81 Chambers St., New York City

It is NOT SURPRISING that the

METZ WON THE F. A. M. HILL CLIMB



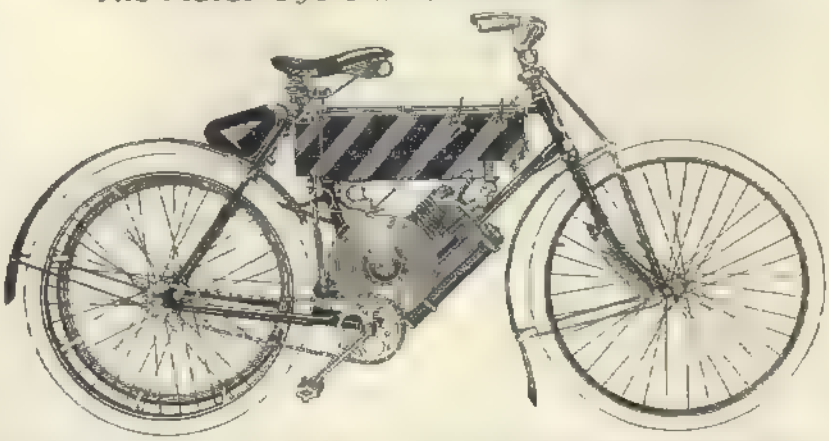
On Prospect Hill, August 8th, making the fastest time of the day.

It is even less surprising that the three **Metz Machines** in the **Endurance Run** 250 miles, New York to Waltham in 16½ hours, came through with **Perfect Scores** Every one who knew the superiority of the Metz Design and construction expected it. Investigate for yourself.

METZ FACTORY **WALTHAM, MASS.**

"YALE-CALIFORNIA"

The Motor Cycle which runs all the time



Perfect confidence in his mount is enjoyed by every rider of a "YALE-CALIFORNIA." He knows well before he starts out on a trip that he will take all in stride, reach destination and back again without any of the annoyances that so often beset the motor cyclist. This confidence is the result of experience. In service the "YALE-CALIFORNIA" simply proves all our claims as to reliability, economy of maintenance, absence of vibration, etc. Is not this the kind of a motor-cycle the rider wants to buy, and the dealer to sell?"

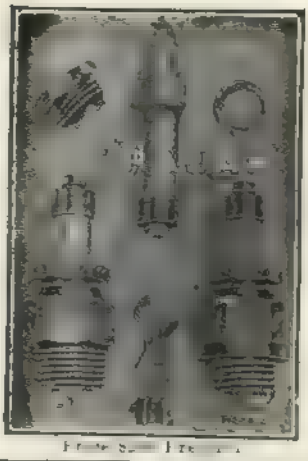
Write for detailed description, it will prove interesting

Consolidated Manufacturing Co. TOLEDO, OHIO : :

Used by leading merchants for the past two years with absolute success . . . . . .

Builders exclusively of
Commercial Power Wagons
Solid Tires

RAPID MOTOR VEHICLE CO.,
Factories: Detroit and Pontiac
Address all communications to
Pontiac Factory



"RAJAH" SPARK PLUGS

IGNITION ABSOLUTELY SURE

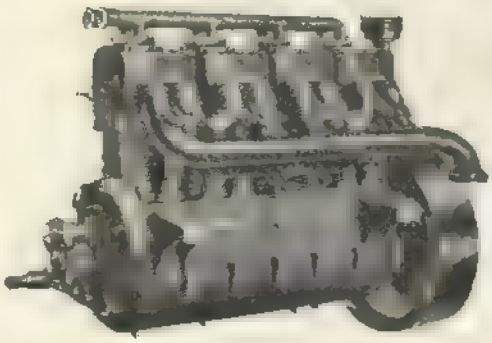
Simple in construction, easy to clean. They give none of the troubles so common to others—are more lasting—and never fail to satisfy.

SOMETHING NEW
"RAJAH MARINE CAP" For Spark Plug

Rajah Auto-Supply Company
140 Washington Street, New York City

The 1906 Rutenber

4-Cylinder, 4-Cycle Vertical Motor



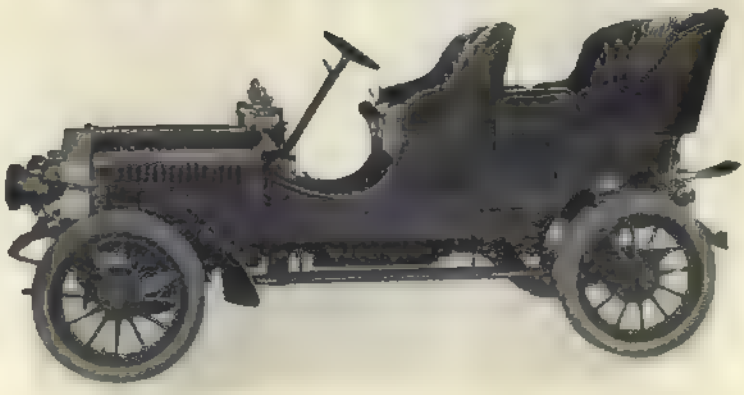
The Rutenber Automobile Motor is unequalled for power, durability, efficiency and smoothness of running. Only the best quality of material is used in its construction, and it is made by skilled men in our own factory. An investigation of our motor will convince you that it has many points of superiority. We make different sizes of motors for Automobile, Marine and Stationary use. Our mufflers really do muffle and our timer is the best that can be made. We make all of our own gray iron, brass and aluminum castings, and are also in a position to make these for the trade.

If you are interested in any of these, we will be pleased to have you write us for descriptive matter.

THE WESTERN MOTOR CO., Logansport, Indiana

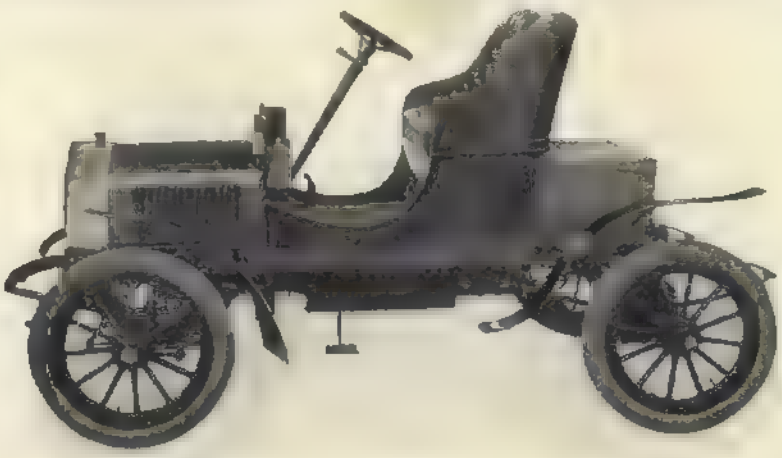
"The car you ought to have at the price you ought to pay"

MITCHELL



MITCHELL Touring Car. Price, $1500

THE "MITCHELL" is the ideal touring car. It is strong, durable, quiet in operation, smooth-running, and smart in appearance. The motor develops 18-20 H P every bit of which does useful work at the wheels. It is a great hill climber, taking the highest grades with ease. All working parts are unusually accessible, due to the simplicity of design. When you consider all the good features of "THE MITCHELL," and its low price, you will be more than ever convinced that it is "the car you ought to have at the price you ought to pay."



MITCHELL Runabout. Price, $750.00

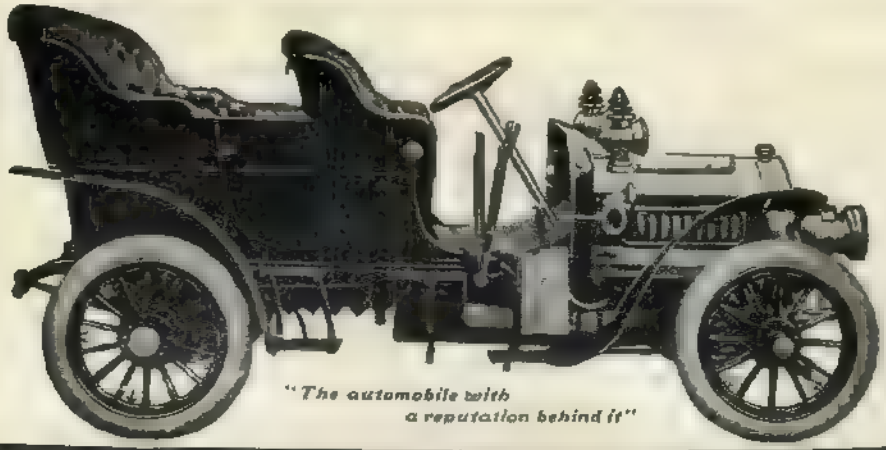
This staunch little rig is distinctive. There is nothing quite like it on the market, because it is as carefully designed and as up-to-date in appearance as any three or four thousand dollar car. Its two-cylinder vertical engine is mounted in front. It has a mechanical oiler, it has a sliding gear transmission, irreversible steering gear and it **has a pressed steel frame.** The **MITCHELL RUNABOUT** represents full value. Try one, and you will buy one.

Write for full details regarding these two models. It will be interesting, and if you are about to purchase a motor car, may save you money.

MITCHELL MOTOR CAR CO.

RACINE, WIS., U. S. A.

Members of American Motor Car Manufacturers' Association, Chicago.



STUDEBAKER

No. 9503 4-Cylinder Gasoline Car

Mechanically, No. 9503 is strictly a common sense car. In addition to its unsurpassed methods of ignition and lubrication, already described.

Its Rear Axle Construction

is the acme of practical engineering. This axle drives the wheels, but does not carry the weight of the car. The rear wheels revolve on the end of the tubular housing of the axle proper. By this common sense division of labor, lightness and strength is acquired. While this axle may be taken apart in eight minutes, no case has yet occurred when this has been necessary.

The combination of light weight, ample power, ball bearings and perfect lubrication in Model 9503, make it the ideal touring car.

SEND FOR CATALOG

STUDEBAKER AUTOMOBILE CO.

SOUTH BEND, INDIANA

Member Association Licensed Automobile Manufacturers

REPOSITORIES:

New York City, Broadway and 5th Ave., 4 48th St
Denver, Col., cor. 15th and Blake Sts
Chicago, Ill., 378-388 Wabash Ave
Salt Lake City, Utah, 167-169 State St
Kansas City, Mo., 1020 Walnut St.
Portland, Ore., 330-346 E. Morrison St.
San Francisco, Cal., cor. Market and 10th Sts
Dallas, Texas, 317-319 Elm St

Agencies in all Principal Cities.

MOLINE

FOR 1906

Model "A" 30-35 HORSE POWER TOURING CAR $2500.00

Plenty of Power—Plenty of Room Plenty of Speed

Some of the nice features are:

Four cylinder vertical water-cooled motor under the hood, ground cylinders, ground pistons, ground crank shaft bearing surfaces.

Three speed sliding gear transmission; Hill Precision Oiler; Pressed Steel frame; Hollow steel dash. Steel running boards; Vesta Accumulator.

Double side entrance body for five passengers, luxuriously roomy and elegantly finished.

Model "C" 18-20 Horse Power Light Touring Car $1750.00

NEAT-NOBBY-NICE

All the up-to-date features found in the larger car, only on a smaller scale. Four cylinder, vertical water-cooled motor under the hood with ground cylinders, ground pistons and ground crank shaft bearing surfaces.

Three speed sliding gear transmission. Pressed steel frame, Hill Precision Oiler; Vesta Accumulator; Hollow steel dash; Metal running boards.

Stylish new design of double side entrance body with highest grade upholstering and finish.

Model "G" 16 HORSE POWER TOURING RUNABOUT $1000.00

POWERFUL SUBSTANTIAL HANDSOME

New design of double opposed motor; larger cylinders, longer stroke, larger bearing surfaces. More than enough radiation, positive water circulation. Hill Precision Oiler.

Latest style double side entrance, detachable tonneau body with divided front seats.

The best two cylinder motor proposition in the market for 1906.

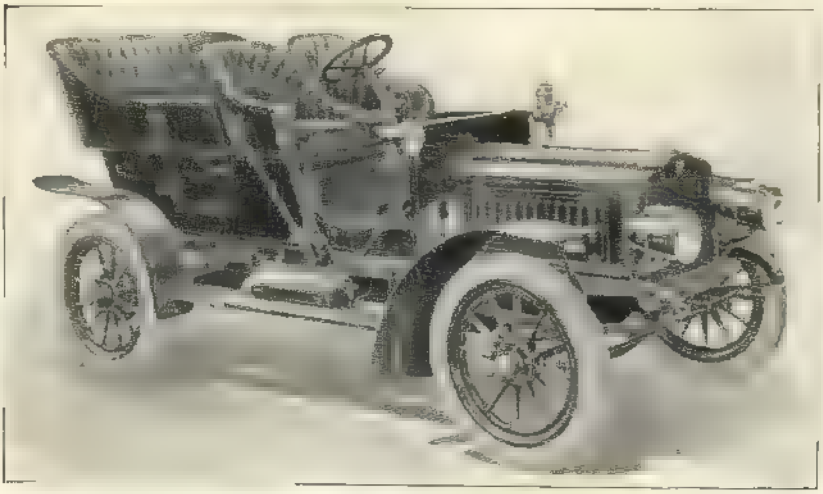
We are increasing our facilities and will more than double the output of last season. We will not oversell our output and will protect our agents on deliveries.

Moline Automobile Co.

East Moline, Illinois

THE MITCHELL

"The car you ought to have at the price you ought to pay"



TOURING CAR, 1906 Model. Price, $1500

This car is equipped with a 4 cylinder, vertical motor developing 18-20 H. P., actual. It does not contain any radical features in construction, but is just a good, substantial, commonsense and thoroughly tried-out car that has made good in every particular. Embodies the best features of the most famous makes, but is vastly different in at least one essential—price.

We have commenced deliveries on

1906 MODELS

Several valuable features have been added, but no pronounced changes have been made in the construction of either model, as they have been too successful to warrant it.

MITCHELL Runabout.
Price, $750.00

Two cylinder vertical motor mounted in front. No car at any price, surpasses this runabout in style, smartness of appearance or up-to-dateness. It is as perfectly designed as any $2000 or $1000 car, has ample power for all conditions of road and is almost as dependable on hills.

Correspondence with hustling dealers in each city solicited. Our handsome 1906 catalog is free for the asking.

MITCHELL MOTOR CAR CO., Racine, Wis.

(Members American Motor Car Manufacturers' Association, Chicago.)

National

Motor Cars

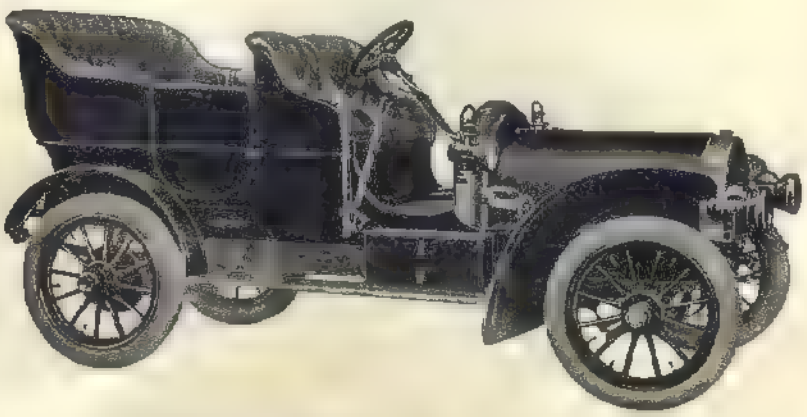
Are Always Reliable

A 1906 **NATIONAL STOCK CAR** won the 100 mile track race for stripped stock cars at Indianapolis, on Nov. 4th, doing the **100 miles in**

1 Hour—53 Minutes—21⅘ Seconds

Breaking the WORLD'S RECORDS against time and in competition.

We have more of the same kind of cars. "Watch for the Round Radiator."



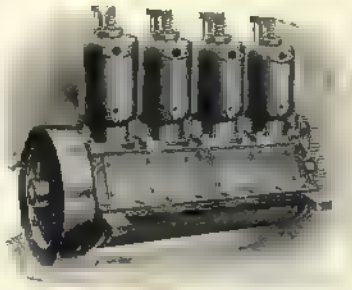
National Model D. 4 Cylinders

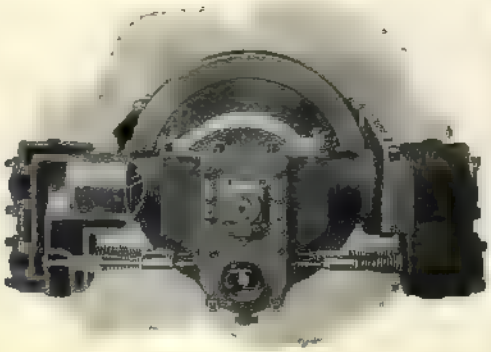
WRITE FOR DETAILS

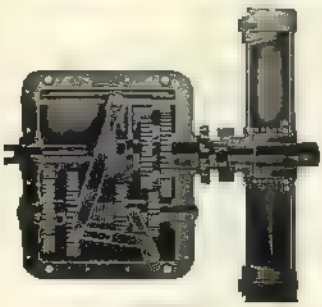
National Motor Vehicle Co.

1003 E. 22d St., Indianapolis, Ind.

Model Engines, Transmissions, and Finished Cars







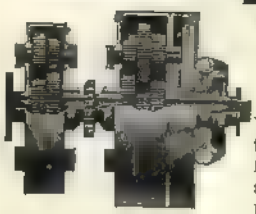
ENGINES

Double opposed engines, 12 to 24 H. P.
Air-cooled 4 cylinder vertical engine, 20 H. P.
Water-cooled 4 cylinder vertical engines, 25 to 60 H. P.

TRANSMISSIONS

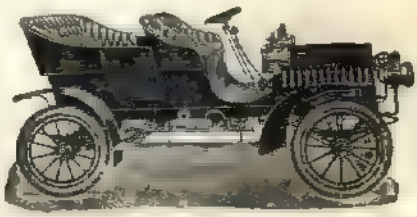
Sliding gear, 3 forward speeds and reverse, either chain or shaft drive.

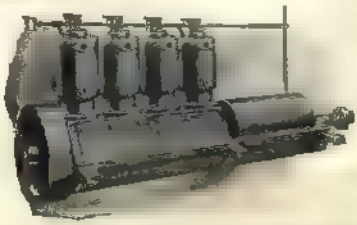
Planetary, 2 forward speeds and reverse; also 3 forward speeds and reverse.



CARS

We build 6 different type cars, in sizes from 12 to 24 H. P., all with double opposed cylinder engines, ranging in prices from $700.00 to $2,000.00.





Special Cars and Trucks

We build special cars and trucks ranging in prices from $1,000.00 to $10,000.00.

MARINE ENGINES

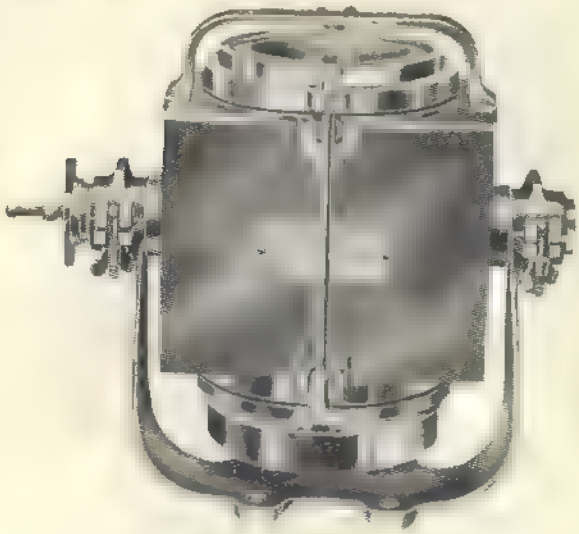
Single cylinder marine engines, 2 to 6 H. P.
4 cylinder marine engines, 15 to 500 H. P.

We also build a line of stationary engines up to 500 H. P. We claim to have the most complete line of stationary, marine and automobile engines, and transmissions, of any concern in the country, and if you want a special car built to your order let us have your specifications and we shall be pleased to submit you quotations.

Model Gas Engine Works

Lock Box 2027, Auburn, Indiana

NewYork Office, B-21 Produce Exchange. **Cable Address, Gasengine, New York.**



The Neverout

TRADE MARK

Patent

Safety Gas Producer

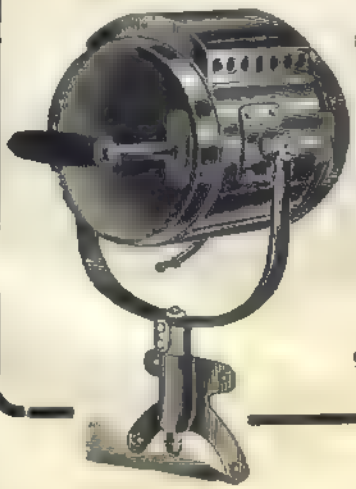
for 1906 is now ready

A still further development of the ingenious model which created such a stir last year.

Many improvements have been made and today the superiority of the *Neverout Safety Gas Producer* over other lighting systems is more marked than ever before.

The gas is of the driest and purest quality, and costs much less than when supplied by any other method—less than ½ cent per hour.

Always ready for instant use and one movement of the hand starts the generation of gas. Extinguished at any time without after-generation or odor or waste.



This simple, efficient gas producer is bound to grow as famous as

The Neverout

Mirror Lens Searchlight

Money back if not satisfactory.
Write for free illustrated catalogue.

ROSE MANUFACTURING CO.

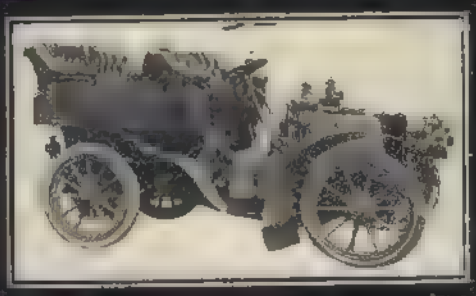
Largest Searchlight Factory in the World.

911 Arch Street **Philadelphia**

THE OIL THAT WILL NOT CHAR

PANHARD

Automobile Cylinder OIL



GEORGE A. HAWS

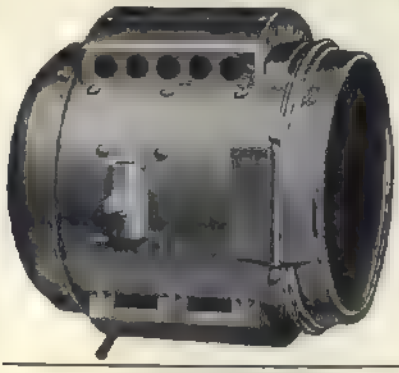
Manufacturer of

Automobile Oils & Greases

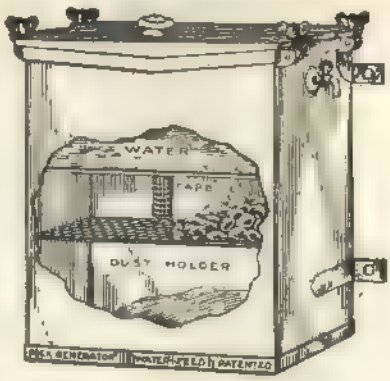
73 PINE STREET NEW YORK

TRADE "Nox-All" MARK

PECK PILOT LAMPS



ARE the strongest and most powerful that can be put on a car. We guarantee satisfaction to the man who insists on a **PECK EQUIPMENT.**



THE PECK GENERATOR

has won a National reputation. Simple—Easy to care for—Ready for use at all times. One charge will supply 2 lamps for three nights. It has no equal on the American market.

Catalogue and prices on request.

The Scoville & Peck Co.
NEW HAVEN, CONN.

The 1906 Yale-California

A Triumph in Motorcycle Building

It has always been our aim to produce the **BEST.** We thought we had succeeded fairly well with our 1905 model, but by careful study and experiment we discovered many points that were capable of improvement.

The 1906 model, therefore, will be distinguished by the following features:

Frame,—designed with bottom rail dropped lower in a graceful curve, thus allowing the motor to be carried lower.

Motor,—not inclined so much as in other models. Constructed with the utmost care, has aluminum crank case and improved bearings, better gasoline tank and better carburetor.

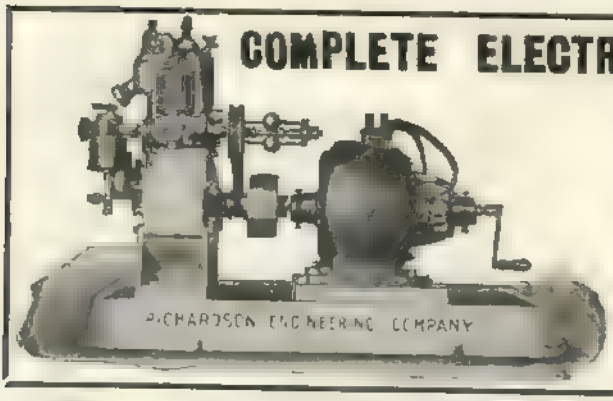
Spring Fork,— is retained, but truss construction is eliminated by the use of a quadruple fork Crown.

Flat Belt Drive.

Finish,—Yale Blue enamel, with full nickeled tank.

Weight,—a trifle over one hundred pounds, all on.

Consolidated Manufacturing Co. **TOLEDO, OHIO : :**



COMPLETE ELECTRIC EQUIPMENTS

for Launches, Yachts, Auto-charging Residences, Garages, etc.

Full line of Belted and Direct-Connected Gas, Gasoline or Steam Outfits

Consulting Department for large work. For 60-page catalogue, address Outfit Dept.

Richardson Engineering Co.

HARTFORD, CONN

NOS. 15 AND 21

PEERLESS AUTOMOBILE JACKS

A model of simplicity, durability and strength. Raise by working handle below center; lower by working handle above center. Works at any angle.

Most Popular Auto Jack in the United States

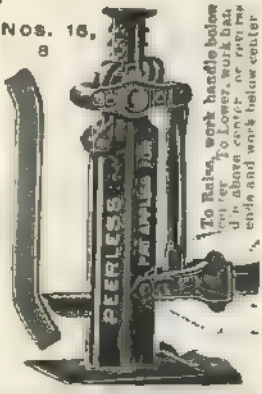
	Height	Rise	Weight	Price
No. 15—For vehicles of 1½ tons,	10-in..	7-in	4½ lbs	$2.50
No. 18—For vehicles of 2 tons,	11-in.,	8-in	7-lbs	3.00
No. 18—For vehicles of 3 tons,	13-in..	8-in.	9-lbs.	4.00
No. 21—For vehicles of 10 tons,	18¼-in..	7 in.	21-lbs.	6.00

A LIBERAL DISCOUNT ON EXPORT ORDERS

OLIVER MFG. CO.

200 S. DESPLAINES ST. CHICAGO, ILL.

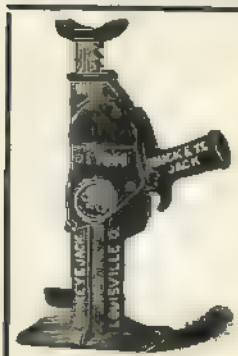
NOS. 15 AND 18



MACHINE SHOP FOR SALE

This shop is located in one of the best sections of New York State within 25 miles of Syracuse. The [illegible] is building [illegible] construction equipped with modern machines and appliances suitable for manufacturing mostly anything. Adapted for gasoline engine building of anything in the automobile line. Reliable water power, plenty of grounds and storage buildings.

A possible [illegible] machine can be run either by steam or [illegible] power, as [illegible] all gasoline engine [illegible] for weight [illegible] Will dispose of the whole or part of [illegible] terms. For full particulars address MODEL PLANT, care this Journal



A BUCKEYE

The Buckeye Jack Mfg. Co.'s

factory is taxed to its full capacity trying to fill the many orders coming in for their wonderful Automobile Jack. It is the PEER of them all. Investigate it before placing your orders.

THE BUCKEYE JACK MFG. CO. LOUISVILLE, OHIO

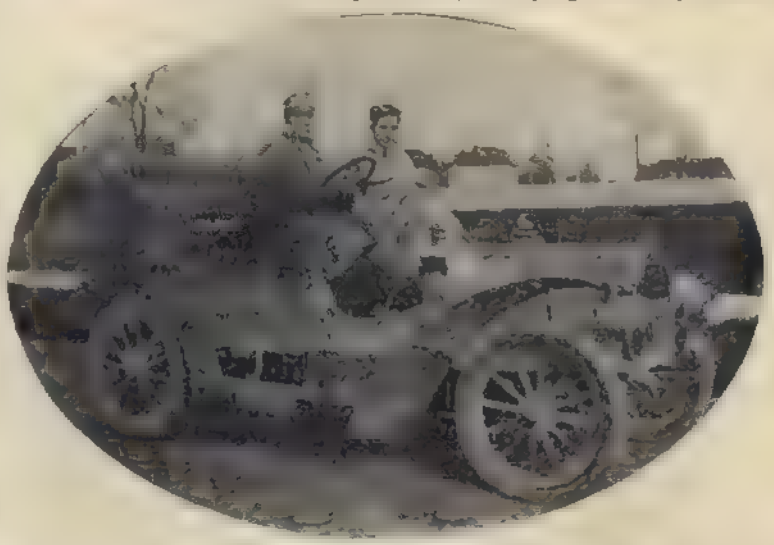
Detroit to New York IN 48 Hours Without an Adjustment

of any kind except two Springs broken by accident

[redacted]

This 22 H. P Model F, $1850, Pungs-Finch Car, was driven from Detroit to New York in 48 hours running time, without a single adjustment or REPAIR, except springs.

[redacted]



State of Michigan } S.S.
County of Wayne }

Edward B Finch and Harry F George, both of Detroit, in said county, being severally, duly sworn, each for himself, says that they together, did in October, 1905 drive a 22 H. P. Model F., Pungs Finch regular stock Touring Car, from Detroit to New York, Odometer register of 440 miles, in 48 hrs., running time, making absolutely no repairs or adjustments on the way, excepting replacing two springs, broken through accident, and tire repairs

Subscribed and sworn to before me this 1st day of November, A D. 1905

Edward B. Finch

Dwight C Rayford, Harry F. George

Notary Public, Wayne Co., Mich.

My commission expires Jany. 6, 1907

Our 1906 LINE IS ..RIGHT..

Pungs-Finch Auto Co.

DETROIT, MICHIGAN

This Trade Mark on Every Package.

Registered U. S. Patent Office

Look out for Yellow Label

Use Albany Grease

FOR YOUR AUTOMOBILE

It Is the Best, Cheapest, Cleanest and Safest Lubricant Known.

It will not gum, prevents rust, reduces friction, does not drip, prevents hot boxes, keeps your motor in perfect running order, saves expenses and repairs and will not freeze

It is the Standard Automobile Lubricant and is used by most manufacturers of automobiles to start their new machines.

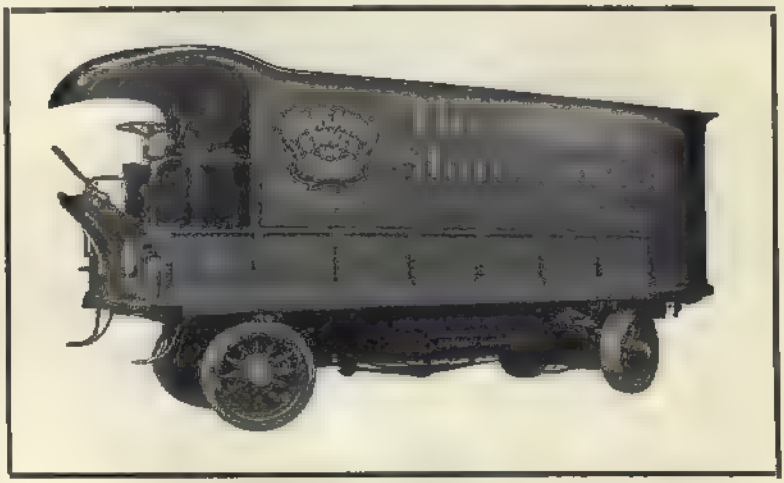
[redacted]

ONLY MADE BY

ADAM COOK'S SONS, 313 West St., N Y. City

The "QUADWAY" has the "ONLY WAY" To carry the load, and make it pay.

Power to all four wheels gives all your load for traction. Don't ask the back wheels to lift half the load and push the other half **you can do it, but it costs more than it is worth.**



THE QUADWAY ELECTRIC TRUCK
Capacity, 7 tons. Speed, 8 miles per hour.

If you would like to know what it would cost to do your trucking by motor trucks, write us, we will be pleased to tell you and it may save you money.

We manufacture all classes of delivery wagons, trucks and busses.

COMMERCIAL MOTOR VEHICLE CO.

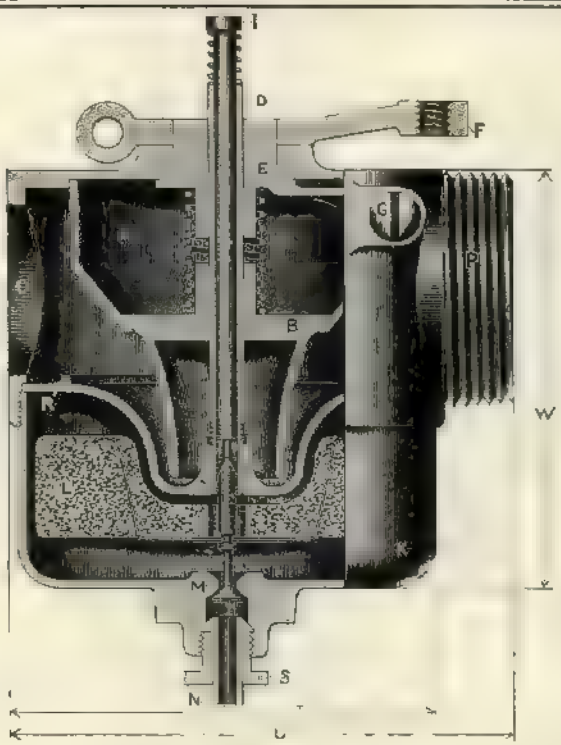
259-267 FRANKLIN STREET

Detroit, Mich.

The Universal Carburetor

FOR

Automobile and Marine Service



"FACTS"

Its float chamber is so located as to insure a perfect level of gasoline under all circumstances.

It is extremely simple of adjustment.

It is guaranteed to give more power with less gasoline than any other carburetor.

It will give absolute uniformity of power at all speeds.

It will pick up its load instantly, needs no flushing, and will start on the first charge.

All of the above "FACTS" are guaranteed or money refunded, therefore it costs you nothing to try it. What more can we offer?

NOTE Owners of Ramblers and Ford Automobiles can improve the working of their car to such an extent that they would not recognize them, by using our Universal.

We are looking for live agents

SPEED CHANGING PULLEY COMPANY

INDIANAPOLIS, INDIANA

Surrey, Type One,
$1,200.00
Cape Top, $100 Extra.

The Rambler

requires 40 to 50% less gasoline than other cars

110 miles, over three mountain grades, from Los Angeles to Santa Barbara, Calif., on **7 1-2 gallons of gasoline**, is the Rambler record. The three other cars with perfect scores used 9½, 10⅓ and 12 gallons respectively.

A practical demonstration at any Rambler agency of Rambler ease of control, simplicity and reliability of mechanism, slight cost of fuel and maintenance, will prove to you that the Rambler is the car for you to buy

Surrey, Type One, illustrated above, complete with lamps, horn, tools, etc., $1,200.00. Cape top $100.00 extra. Write for catalogue illustrating and describing six different models from $650.00 to $3,000.00.

Thos. B. Jeffery & Co.

Main Office and Factory, Kenosha, Wis., U. S. A.

Branches:

Boston, 145 Columbus Ave.; Chicago, 302-304 Wabash Ave.;
Philadelphia, 242 N. Broad St.; New York Agency,
134 W. 38th St., Milwaukee, 457-459 Broadway.
Agencies in other leading cities.

THE NEW MODEL 1906

Rainier

30-35 H.P.

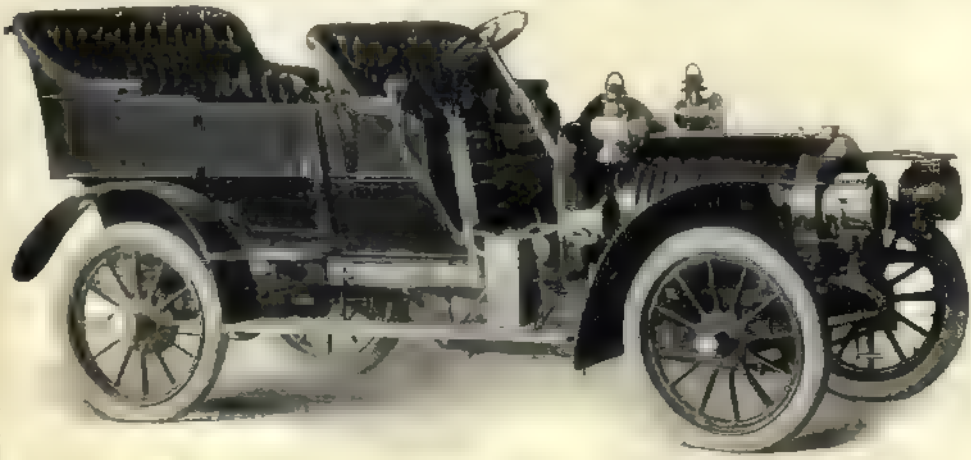
What the automobile buyer is going to do when he is strenuously told that each and every one of the 1906 cars is THE BEST CAR IN THE WORLD.

He is going to do just two things.

He is not going to be stampeded or frightened by the whirlwind of words with which one car after another comes before the public on paper.

When he gets down to business he will find the RAINIER in the front rank of cars that have won reputation and made fast friends by actual achievement. He will find that in every inch of metal and wood, in every working part, in every line, the Rainier as it will take the road in 1906 is the very embodiment of strength, compactness, lightness and beauty—now more than ever before. The Pullman of Automobiles.

We want good Rainier Agents in all unassigned territory. We can give them a car to sell too. We believe we will take a new sale out of every purchaser. We stand back of the Rainier with the broadest and most liberal guarantee ever given. Correspondence invited.



ENGINE	30 H. P. 4 cylinders, water cooled.
IGNITION	Single coil Magneto, make and break spark.
TRANSMISSION	Sliding gear, speeds forward and one reverse.
REAR AXLE	Semi-floating type, Timken roller bearings.
FRONT AXLE	Drop forged I beam.
FRAME	Cold rolled pressed steel, aluminum under bonnet covering entire engine and transmission.
WHEEL BASE	94 inches.
WHEELS	Imperial wheels, no. grade A hard grown hickory.
TIRES	Continental 34 x 4.
VALVES	Mechanically operated inlet and exhaust interchangeable.
CARBURETOR	Float feed with mixing adjustment.
BRAKES	Internal expanding and external contracting, operating on rear hubs through emergency lever by the driver's hand or by the foot. Foot brake operates on propeller shaft. Both brakes have double acting shoes.
BODY	Four passenger touring car.
EQUIPMENT	Lamps, gas lights, 2 side lights, 1 rear light, 1 horn.

PRICE, $4,000

The 22-28 H. P. will be continued as heretofore, without any changes.

4 cylinder—98 inch wheel base—La Coste coil. French battery. Continental Tires.
Aluminum side door body.

PRICE, $3,500

Both Models Guaranteed Free of Repairs for One Year

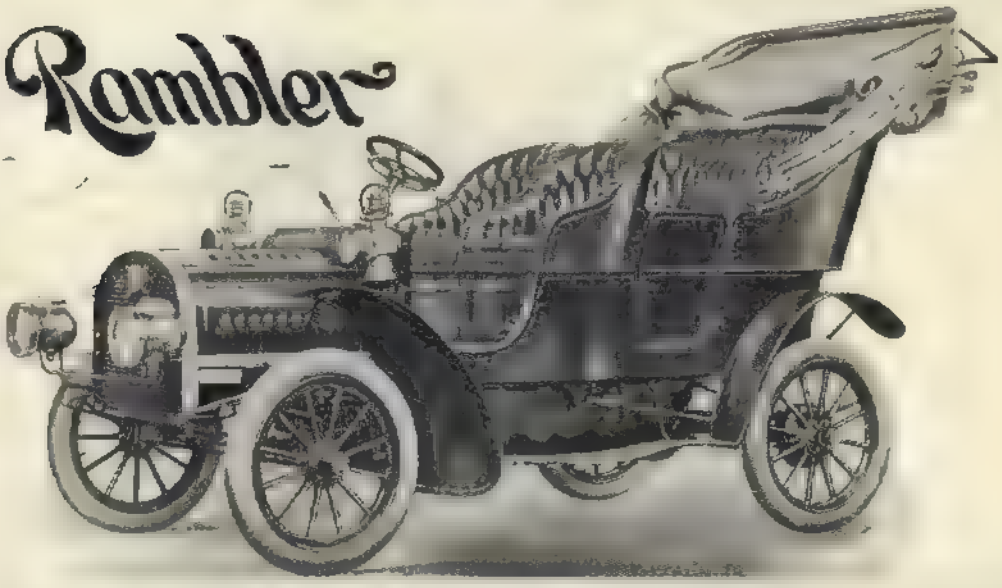
The world's broadest and most liberal automobile guarantee.
Landaulet bodies for immediate delivery. Limousines for December delivery.

THE RAINIER COMPANY

BROADWAY, COR. 50TH ST. NEW YORK

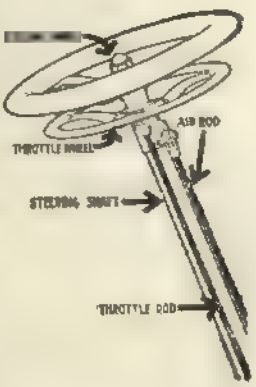
Boston Agents: MORRISON-TYLER MOTOR CO.
Good Agents wanted in unassigned territory.

Rambler



The hand that steers also controls the power

The Rambler throttle is opened or closed by the fingers of the hand that rests on the steering wheel.



Every forward movement of the car, from top speed to a complete stop, can be regulated by this means alone.

This simplicity of control secures positive safety for every Rambler owner.

This feature is only ***one*** of the many points of Rambler superiority. The rest will be mailed you on request.

Surrey Type One, illustrated above (without top . $1350 complete with lamps, tools, etc. Cape top, $125 extra. Other models $750, $850, $2000, $3000.

Thomas B. Jeffery & Company,

Kenosha, Wisconsin, U. S. A.

Branches: Boston, Chicago, Philadelphia.

New York Agency, 134 W. 38th St. Representatives in other leading cities.

From year to year the

Reading Standard

line of bicycles has become more prominent, until today they are the most popular bicycles in the country. The reason for their success is that they give to the agent and rider good value and perfect satisfaction. They are so constructed that the first cost is the only cost, there being no defective material or inferior workmanship about a **"Reading Standard."** If you want to handle an easy-selling line, put the **"Reading Standard"** on your list for next year.

We make the following models:

READING STANDARD Pace-Follower Model - -	List $60 00
READING STANDARD Racer Model - - - -	List 50 00
READING STANDARD Road Racer Model - - -	List 40 00
READING STANDARD Ladies' Light Roadster Model -	List 40 00
ROYAL READING ROADSTER, Men's Model - -	List 30 00
ROYAL READING ROADSTER, Ladies' Model - -	List 30 00

The Thoroughbred

Motorcycle

overcomes prejudice, by convincing the skeptical that it is possible to make motorcycles right. Hundreds of riders are finding pleasure and satisfaction in **The Thoroughbred,** where before they had only discomfort and worry. One of the features that adds to the popularity of **The Thoroughbred** is the New Duplex Cushion Fork, which has twice as much spring, less joints, is stronger and superior to any other fork.

"If you want to ride a winner, get a **Thoroughbred.**"

On July 22d at the F. A. M. New York Motor Cycle Club's race meet in Brooklyn, N. Y., only two stock 1¾ h. p. Thoroughbreds were entered but two firsts and one fourth was their portion, and the fourth prize represents the defeat of every machine save the big two cylinder affairs. In the novice and pursuit race for single cylinder Full Roadsters, the Thoroughbred defeated every other make, winning both firsts and all Thoroughbreds are as fast and as good as those stock machines.

Reading Standard Cycle Manufacturing Co.

Reading, Pennsylvania, U. S. A.

LEAVITT & BALL, San Francisco, distributers for the State of California

READING STANDARD

ARE YOU A

READING STANDARD

AGENT FOR 1906?

If not, you should write for your territory at once. You will find it worth while, because as a reputation and money maker, the **READING STANDARD** line of bicycles has no equal. They are the kind that are a pleasure to sell, because there are no after complaints from purchasers.

We offer the following models:

READING STANDARD Pace-Follower Model -	List $60 00
READING STANDARD Racer Model - - -	List 50 00
READING STANDARD Road Racer Model - -	List 40 00
READING STANDARD Ladies' Light Roadster Model	List 40 00
ROYAL READING ROADSTER, Men's Model -	List 30 00
ROYAL READING ROADSTER, Ladies' Model -	List 30 00

Write us; we will tell you something interesting

The Thoroughbred

for 1906 will maintain the reputation which it has achieved in the past, of being the speediest, sturdiest and most satisfactory motor cycle on the market. "If you really want to ride a 'winner,' you will get a **Thoroughbred.**"

We will be pleased to tell you all about it, on request.

Reading Standard Cycle Mfg. Co.

READING, PA., U. S. A.

Leavitt & Bill, San Francisco, Distributers for the State of California.
Scott Supply & Tool Co., Denver, Col., Distributers for the Rocky Mountain States.

READING STANDARD

READING STANDARD

READING STANDARD

THE "Exide" BATTERY

FOR *ELECTRIC VEHICLES* MANUFACTURED BY

THE ELECTRIC STORAGE BATTERY CO.

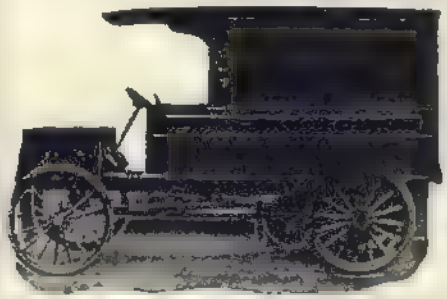
PHILADELPHIA

The "Exide" Sparking Battery. "Exide" Depots in Principal Cities

SALES OFFICES

Philadelphia, Allegheny Ave. and 19th St
New York, 100 Broadway
Boston, 60 State St
Chicago, Marquette Building
St. Louis, Wainwright Building
Cleveland, Citizens' Building
San Francisco, Rialto Building
Canada, The Canadian General Electric Co., Ltd., Toronto

SYNNESTVEDT MACHINE COMPANY



PITTSBURG, PA.

Manufacturers of

Electric Vehicles

Delivery Wagons **Trucks**
Stanhopes **Surreys**
Busses

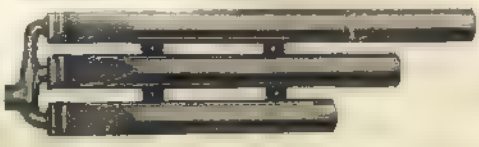
EASTERN BRANCH—1005 Drexel Bldg., Philadelphia
Commercial Automobile Co., Distributers
1338 Michigan Ave., Chicago, Ill.

A genuine motor cycle, 2 H. P., 110 lbs. scale weight, 54" wheel base, beautifully balanced, vibration practically eliminated, grip control, sight feed oiler, Russian rawhide, double thick, stitched water proof belt, noiseless, clean and perfect in transmitting power and practically non stretching. We want live enthusiastic agents, who realize the tremendous future of motor cycles. Get advance sheet No. 1.

RELIANCE MOTOR CYCLE CO.,
Addison, N. Y.

GABRIEL HORNS

Blow from exhaust, enabling the driver to give entire attention to the car's limiting constant watching which mars the pleasure of an auto ride. Warn without frightening. Having a clear, far sounding musical blast. Are made of highly finished brass, in three sizes. Nothing to get out of order and are easily attached to any car, steam or gasoline. Have you heard our eight chime horn? An outfit on which you can play any tune! When purchasing be sure the horn has our trade mark.



Write for catalogue and prices

THE GABRIEL HORN MFG. CO.

No. 977 HAMILTON ST.
CLEVELAND, OHIO

THE COVERT

A POWERFUL RUNABOUT FOR CITY OR COUNTRY

It made many wonderful touring records last season, but will surpass them all this season. The 1906 model is a wonder on the roads.

If you want a light and reliable car for a low price the Covert fills the bill.

It has an upright motor, sliding gear transmission, shaft drive. It is easily the most comfortable runabout on the market, for it has a long wheel base and wonderfully easy springs.

Price, f.o.b. Lockport . . $650
Immediate Deliveries. Write for Catalog

COVERT MOTOR VEHICLE COMPANY, RICHMOND ST., LOCKPORT, N.Y.

IT IS BETTER TO BE SAFE THAN SORRY

For [illegible] type of [illegible]

The Victor Ratchet Foot Lever

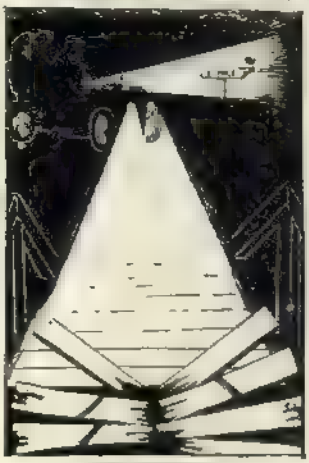
[illegible] patent

which is a device for locking the foot brake. That it is a simple, practical and reliable invention, is proved by the fact that over twenty thousand are in use.

THE VICTOR RATCHET is made to suit the car. Sample submitted upon receipt of specifications for 1906.

THE READING AUTOMOBILE CO., Sole Mfrs.
98 SOUTH FIFTH STREET, READING, PENNA.

Direct Your Lights with Your Steering Wheel

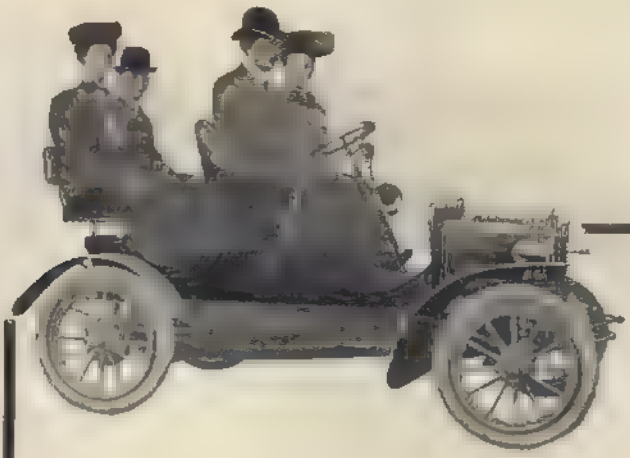


[illegible] patented

[illegible] Lamp Adjuster

THE IMPERIAL-LYON
Automatic Lamp Adjuster

[illegible] Lamp Adjuster [illegible] the [illegible] [illegible] [illegible]



REO

$675 REO 1906 Four-Seated Runabout

The extra seat carries two people facing forward, and when not in use, is folded down snugly out of the way. 8 h. p., 1000 pounds, 25 miles per hour.

"First Honors Again for REO"

In the New York Motor Club's great six-day economy test

The REO 8 horse-power Runabout with extension seat carried 4 passengers 682 miles for $3.33½ per passenger and won the Gold Medal for cars costing up to $1500, and one other medal.

The REO 16 horse-power 'bus carried ten passengers 682 miles for $2.93 per passenger (including ferriage), winning the national trophy and two other medals.

Five prizes out of seven went to the splendid REO capacity and power.

Write for the REO Book that tells why

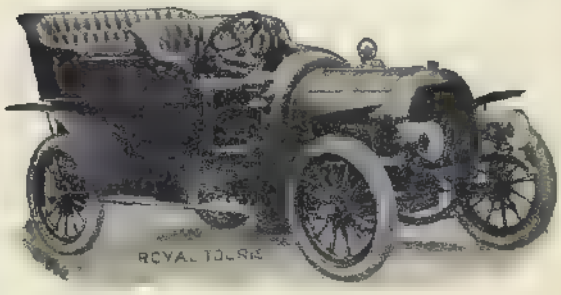
REO 1906 Touring Car, 8 h. p., 1000 pounds, 86-inch wheel base, 5 passengers, side door detachable tonneau. Speed 25 miles per hour. $[illegible]

REO Motor Car Co. **Sales Department, Lansing, Mich.**
R. E. Olds, Prest., R. M. Owen, Sales Mgr.

Agencies throughout the United States

ROYAL

TOURIST



Model F. 32-38 H. P. Price, $3000

You Can Pay More but You Can't Get Better

THE MOTOR is four cylinder, 5 1/2x5½", developing 40 H. P. under all conditions. As the car weighs 2500 pounds, you can appreciate that the **ROYAL TOURIST** has plenty of power to spare.

THE DIRECT FLEXIBLE SHAFT DRIVE is one of the most remarkable pieces of automobile construction. It transmits the maximum amount of power with a minimum loss and relieves the usual strain on the pinion and main drive by means of a parallel rod telescoping with the differential casing and with a ball and socket joint at the other end.

THE NEW CARBURETOR has many new excellent features, including a hot gas jacket, together with a throttle with an auxiliary air inlet.

THE OILING SYSTEM is the most novel and effective system used

These and many other exclusive **ROYAL TOURIST** improvements will be explained to those who are interested in hearing about the car bearing the reputation that—"Those who know it best, know it is the best.

Prompt Deliveries Guaranteed. Write for Booklet.

Royal Motor Car Co., Cleveland, Ohio, U. S. A.

NOISELESS GEARS

FOR YOUR

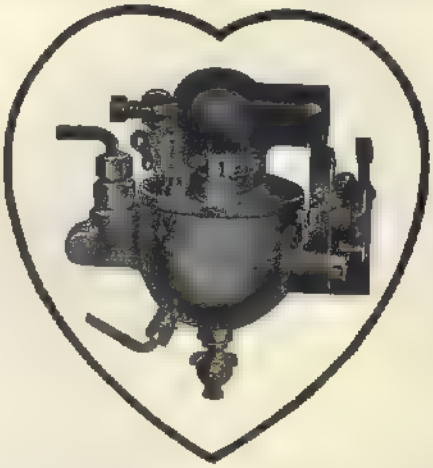
1906 CARS.

THIS year we furnished New Process raw-hide gears with malleable or steel centers and with bronze flanges, to some of the leading automobile manufacturers for driving their cam shafts. These gears worked so satisfactorily that we have already arranged with several other concerns to adopt them on their 1906 models. If you have not yet looked into this matter do not postpone it longer. It means one step further toward "that quiet running car" for which you are all working. Of course we take it for granted that you are already using New Process Noiseless Pinions for driving your pumps, magnetos, etc. Let us hear from you.

The New Process Raw Hide Company

SYRACUSE, N. Y.

The Heart



OF THE

Auto-mobile

The Schebler Carburetor

Seventy-nine automobile and marine engine builders in the United States and Canada have adopted the Schebler. No other carburetor made in the world can show this record.

SCHEBLER SPECIAL for Cadillacs, Price, $20.00
OLDSMOBILE Carburetor, - - " 18.00
FORD, Two-Cylinder, - - - - " 18.00

STANDARD SIZES WILL FIT ALL OTHER AUTOMOBILES

Agencies in All the Principal Cities of the World

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AUTOMOBILE EQUIPMENT COMPANY, Detroit, Michigan.
SMITH ELEC. ENGINEERING CO., Watertown, N. Y.
THE WALLACE BROS. CO., Norfolk, Va.
NORTH PHILADELPHIA AUTO STATION, No. 3425 North Broad Street, Philadelphia, Pa
P. J. DASEY, Factory Representative, 431 Wabash Ave., Chicago, Ill.
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R. P. BAYLEY & CO., New Orleans, La.
CONSOLIDATED SUPPLY CO., Denver, Colorado
LOS ANGELES AUTO CO., Los Angeles, Cal.
CHANSLOR & LYON MOTOR SUPPLY CO., 503 Golden Gate Ave., San Francisco, Cal.
McCULLOCH & BOSWELL, Winnipeg, Manitoba
WILSON & COMPANY, Ottawa, Ontario, Can.
CANADA CYCLE & MOTOR CO., Toronto Junction, Can.
TURNBULL & JONES, Dunedin, N. Z.
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QUICK DETACHABLE TIRE

The latest and greatest achievement in automobile tire building.

Send for special booklet. It will interest you.

THE B. F. GOODRICH COMPANY,

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NEW YORK,
66-68 Read, St., and 1625 Broadway

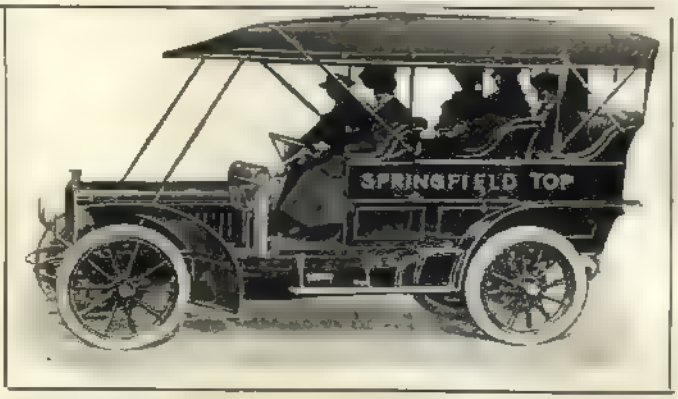
CHICAGO, 131 Lake Street.
SAN FRANCISCO, 392 Mission Street.
BUFFALO, 731 Main Street.
DENVER, 1444 Curtis Street.
ST. LOUIS, 3926-28 Olive Street.
PHILADELPHIA, 909 Arch Street
BOSTON, 161 Columbus Avenue.
DETROIT, 80 East Congress Street.
CLEVELAND, 416 Erie Street.
LONDON, E. C., 7 Snow Hill.

Springfield Tops

PATENTED APRIL, 1905

All Styles of Tops for all Types of Cars

ALUMINUM BODIES

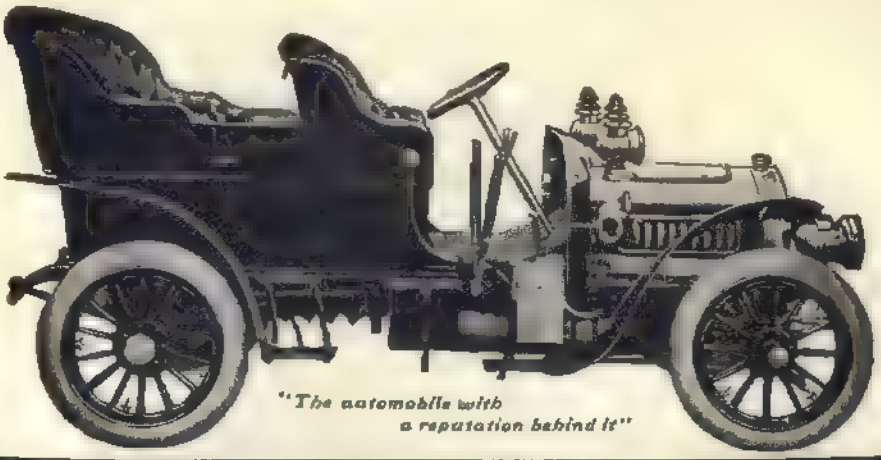


ALUMINUM FENDERS

SPRINGFIELD METAL BODY CO.,

364 BIRNIE AVENUE

Springfield, Mass.



STUDEBAKER

No. 9503 4-Cylinder Gasoline Car

Mechanically, No. 9503 is strictly a common sense car. In addition to its unsurpassed methods of ignition and lubrication, already described,

Its Rear Axle Construction

is the acme of practical engineering. This axle drives the wheels, but does not carry the weight of the car. The rear wheels revolve on the end of the tubular housing of the axle proper. By this common sense division of labor, lightness and strength is acquired. While this axle may be taken apart in eight minutes, no case has yet occurred when this has been necessary

The combination of light weight, ample power, ball bearings and perfect lubrication in Model 9503, make it the ideal touring car.

SEND FOR CATALOG

STUDEBAKER AUTOMOBILE CO.

SOUTH BEND, INDIANA

Member Association Licensed Automobile Manufacturers

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Salt Lake City, Utah, 57-159 North 2nd St.
Kansas City, Mo., 416-418 Walnut St.
Portland, Ore., 130-132 N. Murry and 85
San Francisco, Cal., cor. Market and 12th
Dallas, Texas, 313-319 Main St.

Agencies in all Principal Cities

AS A RESULT OF GOOD WORKMANSHIP,

our 1905 cars gave the best of satisfaction and we had no trouble in selling our output. Our agents are all satisfied and made a good record selling our cars. We have room for a few more live agents, as we have increased our output to a large extent.

Our 1905 cars were winners as to speed, hill climbing and beauty. We had one agent say to us "You have too much power." This may be so, but you know that power is what you want in an automobile.

For 1906, we have the same engine and frame construction, which has given the best of satisfaction and these parts will not be changed, only the wheel base will be 90 inches, being 6 inches longer than last season. We have a new body this year and when it comes to style, the $2500.00 or $3000.00 cars do not equal it.

The new car has been tested out under the most difficult conditions. We have driven it through mud and over hills, and after days and weeks of the hardest tests, it was sent over 50 miles through the worst kind of mud and came through without an adjustment and made the run in 2 hours and 8 minutes with four passengers.

The Auburn, Model C, is guaranteed to climb any hill on the high speed that any other car will with the same size engine.

The Auburn has a 20 H. P. engine with speed from 3 to 35 miles an hour. Write us now for terms and agency for 1906.

AUBURN AUTOMOBILE CO.

Auburn, Indiana

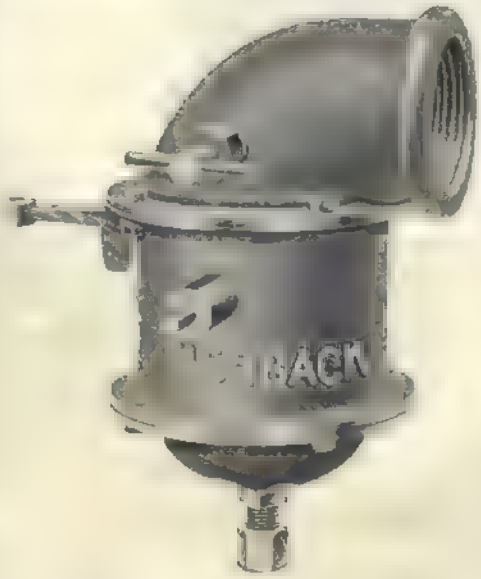
1906 Model, No. 44 **Price, $145.00**

Trans-Continental Record

LOWERED by Wm. Cadeayne, riding 1906 ***THOMAS AUTO-BI.*** No. 44. Considering the time of year the most wonderful performance ever made on a motorcycle. ***But*** the No. 44 is made to ***GET THERE.*** The ***agency*** for a machine like this ***should*** be ***valuable.*** Better investigate.

Advance catalog free.

THE THOMAS AUTO-BI. CO., 1453 Niagara St., Buffalo, N. Y.



Mr. Manufacturer

What has been your carburetor experience in the past
Has it been entirely satisfactory?
Have you been getting all the efficiency out of your motors that it is possible to get.
Do it in 1906 with a

FISHBACK
NON-FLOAT

The only successful automatic non-float Carburetor on the market.
A perfected Carburetor which is being adopted by many of the leading manufacturers for the coming season.
Are you going to be with them?

WRITE FOR BOOKLET

MASSNICK MANUFACTURING CO.
Manufacturers and Sole Agents
671-673 E. ATWATER STREET DETROIT MICH.

EVEN TO YOURSELF

CAN YOU PICTURE ANYTHING
MORE BEAUTIFUL THAN THE

1905 Thomas "Flyer"?

THE 40-HORSE THOMAS "FLYER," $3000
OTHERS $3500, $4500, $6000 and $7000

America's Most Popular Automobile

E. R. THOMAS MOTOR CO.

1217 NIAGARA STREET, BUFFALO, N. Y.

Members of Association of Licensed Automobile Manufacturers

Possibly you may be under the impression that all

LIGHT AND HEAVY **STAMPINGS**

IN STEEL, BRASS COPPER ETC.

are alike. If so, it is because you have not investigated those which we are making. Their superiority is marked.

We also make Automobile, Carriage and Bicycle fittings and specialties to order.

We solicit your correspondence, and assure you that in prompt service, quality and price we can interest you.

WORCESTER PRESSED STEEL CO.

SUCCESSORS TO WORCESTER FERRULE AND MFG. CO.

WORCESTER, MASSACHUSETTS

DON'T throw away those weak Batteries, they are good and worth money.

$ $ $ $ $ $

25 to 50 per cent. your Battery cost reduced or a like increase in mileage run by the use of an entirely new device.

The "ECONOMY" Automobile Switch

It pays for itself on first installation. Guaranteed, Positive, Simple, Substantial, Ornamental

Sample by mail on receipt of price, $1.50. Discount to the trade. Money refunded if not satisfactory. Your order will be placed for its turn. Order now and get it on time.

Manufactured by **SEIDLER-MINER ELECTRIC CO.**

205-207 Jefferson Avenue DETROIT, MICH.

"PERFECTION"

High Grade Automobile Engine Cylinders is our specialty.

Samples of same and estimates on work furnished free Best equipment with hot air blast and crude oil in cupola. Goods delivered promptly with satisfaction guaranteed. Reference of our work given. Are you in need of anything in the foundry line? Write us for particulars.

Geo. Barcus & Co.

Wabash, Indiana

Won by a Thomas

Twenty mile road race at Rochester, N. Y., Decoration Day, won by Wm. Chadeayne, on a stock No. 37 motor.

Time—27 minutes, 52 seconds.

More practical improvements than any other motorcycle built. You don't have to make excuses if you own a "Thomas." Catalogue for the asking.

The Thomas Auto-Bi Co.

1443 Niagara St. . Buffalo, N. Y.

THE
"AMERICAN"
Storage Battery
FOR
IGNITION

MONITOR TYPE

VOLTAGE 4, 6 and 8.
CAPACITY 20 Ampere—Hours
PRICES $6.00, $9.00, $12.00
OTHER STYLES $3.25 to $82.00

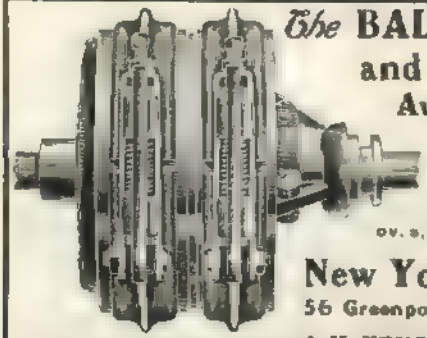
CATALOGUES ON REQUEST
ESTABLISHED 1889

AMERICAN BATTERY COMPANY, 172 and 174 South Clinton Street CHICAGO, ILL.

Porcelain for Sparking Tubes

ANY SIZE OR SHAPE
MADE OF VERY BEST MATERIAL
BY

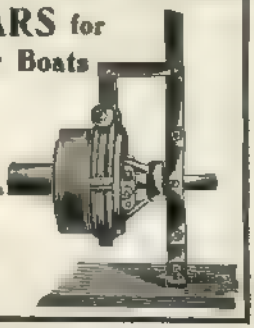
THE STAR PORCELAIN CO., Trenton, N. J.
Send sample or drawing for prices



The BALL Imropved TRANSMISSION and REVERSE GEARS for Automobiles and Motor Boats

MADE ONLY OF SPUR GEARS

PATENTED APRIL 9, 1901, OV. 3, 1903; JAN. 12, 1904; FEB 23, 1904



New York Gear Works
56 Greenpoint Ave, BROOKLYN, N. Y.
Western Agents, J. H. NEUSTADT CO., St. Louis, Mo.

A PERFECT LUBRICANT

CHARLES H. BESLY & CO. SOLID OIL TRADE MARK REGISTERED CHICAGO, ILL. U.S.A.

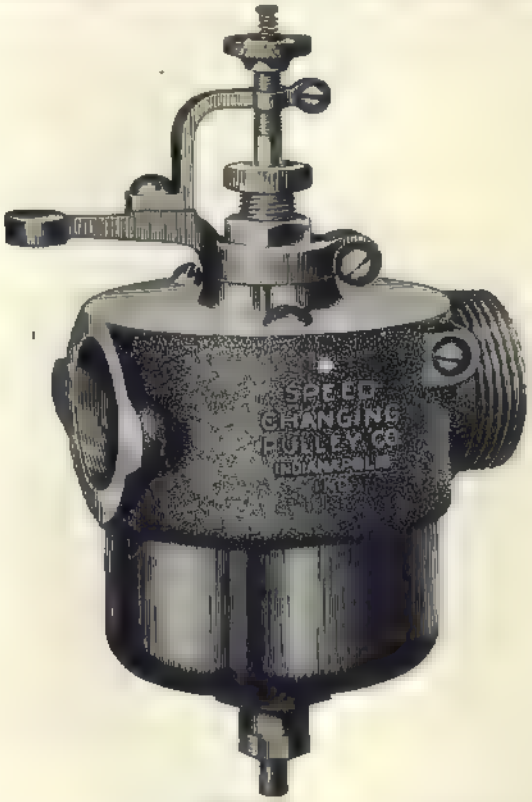
HELMET OIL

Bearings Packed with Helmet Oil require attention at long intervals only
C. H. BESLY & CO., 15-17-19-21 S. Clinton St., Chicago, Ill.

"Universal Carburetors"

"Are Sold Under the Following Guarantee"

To increase the power of the engine
To increase the speed of the engine
To save 25 per cent. of gasoline
To prevent sooting of spark plugs
To produce a uniform mixture at all engine speeds
To insure a perfect level of gasoline no matter in what position the car is placed.



1906 Model

Special Fittings for attaching to Cadillac Machines.

Hours—8-10 A. M. 2-4 P. M. 7-8 P. M.

DR. M. J. SPENCER
2715 E. Washington Street
Phones: Office—Old, Main 2204. House—Old, Main 3020: New, 5242 K.

INDIANAPOLIS, IND., Sept. 28, 1905.

Speed Changing Pulley Company
City

Gentlemen—The carburetor that you placed on my machine gives satisfaction in every respect. My machine runs smoother, has more power and consumes about one-third less gasoline than it did with my old carburetor. I believe you have discovered a carburetor that all owners of automobiles should use.

Very respectfully,
M. J. SPENCER, M. D.

IS IT POSSIBLE TO OFFER MORE?

Users of Ford, Autocars and Rambler cars can save money and increase their pleasure by using the "Universal."

SPEED CHANGING PULLEY COMPANY

INDIANAPOLIS, IND.

Wayne

An Introduction to the Wayne Cars of 1906

The appreciation accorded our cars last year warrants us in greatly increasing our capacity and in placing before the automobile trade improved types of Wayne cars. The four models we now present are the result of mature experience. They are not new and untried experiments. Each car is a distinct type of Wayne design and construction and each model has been built with a view to supplying the varied demand for high grade machines. In the Wayne cars of 1906 the automobilist will be sure to find a car suited to his needs.

WAYNE MODEL F. $3500

MOTOR, 4 cylinder vertical, cylinders 5½ x 5 cast in pairs. Cylinders and pistons ground. Engine develops by brake test 50 H. P. Water Cooled. IGNITION, jump spark with quad coil and storage battery. TRANSMISSION, sliding gear with three speeds forward and reverse. Hess-Bright ball bearings throughout. REAR AXLE, shaft drive floating type. FRONT AXLE, I beam drop forged, one piece, nickel steel. WHEEL BASE, 114 inches. TIRES, 34x4½. EQUIPMENT, includes all necessary tools of the best quality, 2 side lamps, 2 acetylene head lights with generator, tail lamp and tube horn

WAYNE MODEL K. $2500

MOTOR, 4 cylinder vertical, cylinders 4¾ x 5 cast in pairs and water cooled. Engine develops by brake test 35 H. P. Cylinders and pistons ground. IGNITION, same as Model F. TRANSMISSION and axles same type as Model F. TIRES 32x4. EQUIPMENT, same as Model F.

WAYNE MODEL C. $1250

MOTOR, double opposed of the standard Wayne type, with cylinders 5¼ x 5. Engine is hung under the chassis frame and develops by brake test 20 H. P. *It is the same type of motor which proved so successful last season, brought up to date and with all new improvements.* TRANSMISSION is of the planetary gear type with chain drive. CONTROL is by a single lever which engages the high speed clutch and reverse. The slow speed and brake are controlled by foot pedals. TIRES 30x3½. EQUIPMENT, complete set of tools, side oil lamps, tail lamp and horn.

WAYNE MODEL H. $800. TWO PASSENGER RUNABOUT

MOTOR, 2 cylinder opposed under hood. Cylinders 4½ x 4 developing 14 H.P., water cooled. TRANSMISSION, planetary gears with DIRECT BEVEL GEAR DRIVE. Control the same as Model C. TIRES 28 x 3. EQUIPMENT, complete set of tools.

The strong features of these cars are the extreme simplicity and accessibility of the engine and transmission. The crank case and transmission case form one casting and the entire engine can be taken apart or assembled in half an hour

We want agents to write us about the Wayne cars for 1906. Agency arrangements can now be made for unoccupied territory. Write while you think about it, for full particulars

WAYNE AUTOMOBILE CO., Detroit, Mich.

Member American Motor Car Mfgrs. Asso., Chicago

50 H. P. *AUSTIN* 1906 Model

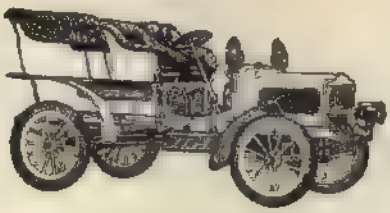
EXCLUSIVE AUSTIN FEATURES

New complete DOUBLE IGNITION system, improved (patented) sliding gear transmission (selective type), FOUR FORWARD SPEEDS with new (patented) method of operation, new (patented) SPRING CONTROLLER absorbing recoil. A BEAUTIFUL and exceptionally well built car, STRONG in every part. Write for full particulars.

Austin Automobile Co.
GRAND RAPIDS, MICH.

The Incomparable WHITE

The Car for Service



Steamer Territory

The Boston Herald in narrating the story of the day's run from Portsmouth to Bretton Woods on the recent A. A. A. tour, said:

"Hill-climbing ability was the great requisite for general proficiency, and in this the steamers showed to particular advantage, the run being through what might properly be termed, steamer territory."

The records of the sport show that, as regards this country, "steamer territory" is bounded on the east by the Atlantic Ocean, on the south by Mexico and the Gulf, on the west by the Pacific Ocean and on the north by Canada and the Great Lakes.

Write for literature which describes the contests on which the above statement is based

White Sewing Machine Company

CLEVELAND, OHIO

THE MARMON

A MECHANICAL MASTERPIECE

This is an unusual picture—and an important one. It is an introduction to the greatest progress ever achieved in the building of automobiles. The flexibility illustrated not only supports our claim that the Marmon is the easiest riding car without any exception, but offers as well a reason for its unrivaled luxury of motion. And though the Marmon is as thoroughly equipped with springs as other cars, its elasticity is something that no mere combination or arrangement of springs can effect, but is due to our patented

Double Three-Point Suspension

Solid cast aluminum body on one frame, power plant on another frame, each suspended on three pivotal points. The engine and transmission are always in perfect alignment and in true relation with the rear axle, free from twisting and binding strains which are inevitable in the customary rigid four-point suspension. This elimination of strain, for very apparent reasons, means greater durability of frames and all working parts and less wear on tires. This construction permits the use of a rigid shaft drive without Cardan joints, delivering the energy of the motor to the wheels without undue loss of power by friction. Automatic force lubrication in engine, with uniform and constant flow of oil through the hollow crank shaft directly into all main bearings, crank and spiton pin bearings, marks the end of oiling troubles. Four-cylinder, air-cooled. Absolutely highest-grade construction. Handsome, stylish and luxurious

Ask for Booklet No. 6 which describes it fully

Nordyke & Marmon Co.

Established 1851 **Indianapolis, Ind.**

Member American Motor Car Manufacturers' Association, Chicago

THEO. E SCHULZ Representative 2024 Broadway, New York
F. E. WING MOTOR CAR CO., Agents
86 Stanhope Street Boston, Mass

STEVENS-DURYEA

FOUR CYLINDER TWENTY HORSE-POWER **TOURING CAR**

SOMETHING NEW

The Three Point Support Idea Isn't—but Its Working Out on the STEVENS DURYEA Is

The engine, transmission and clutch combined into one unit and supported on three points without a sub-frame, is a brand new scheme—nothing like it anywhere. This system protects the mechanism absolutely and completely from all strains caused by rough roads. It reduces the weight of the car a whole lot. It delivers 1 horse power per 90 pounds car weight to the rear wheels. Remember, it is not power at the fly wheel, but power at the rear tires that you want to know about. Some cars lose half their power between the two points. It makes 20 horse power in the Stevens-Duryea do what 20 horse power has never done before in the way of getting over the ground and climbing hills.

This three point support is a momentous improvement in four-cylinder cars. It is something that you will hear more and more about from now on.

Write for descriptive matter.

J. Stevens Arms and Tool Co.
780 Main Street
Chicopee Falls, Mass., U. S. A.

Member of Association of Licensed Automobile Manufacturers

WATERLESS

CARS are sold in greater numbers every year.

One reason for this fact is that they are high power cars which are always satisfactorily cooled winter and summer by the Knox Patent Pin System of air cooling.

A further reason is that the same simplicity and perfect adaptability for continuous, all the-year-round service, which is found in the motor mechanism, characterizes every other detail of their construction.

The absolute reliability and great economy of operation of Knox Cars commend them everywhere. They are used by leading business houses in all the principal cities of the country.

Passenger and Commercial Cars in wide range of style and price are shown in our regular catalog. Correspondence in regard to Commercial Cars of particular specifications is invited.

KNOX AUTOMOBILE CO. **Springfield, Mass.**

Members of Association Licensed Automobile Manufacturers.

Largest and oldest manufacturers of Gasoline Commercial Cars

The Incomparable WHITE

The Car for Service

ANNOUNCING BULLETIN, No. 11

This interesting and artistic publication opens with an account of the record-breaking trip of a White touring car from San Francisco to Los Angeles—a distance of about 470 mountainous miles – in 21 hours and 12 minutes, displacing the former figures of 24 hours and 56 minutes scored by a 30-horsepower car. This important White record was made three months ago, and still remains unapproached.

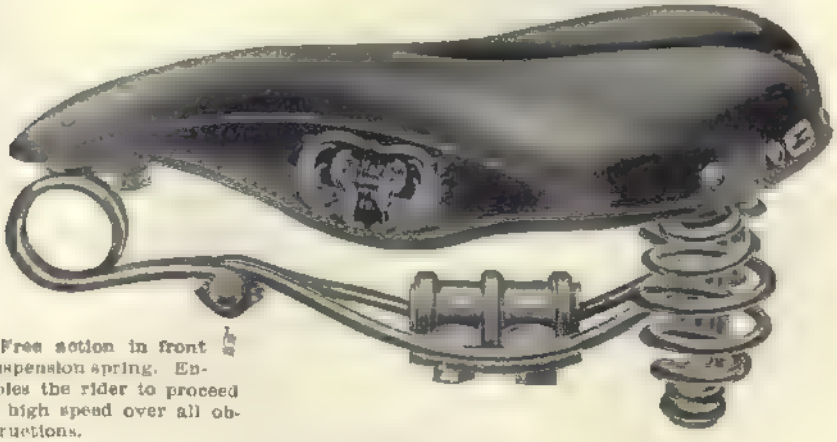
The remainder of the bulletin is devoted to an account of the classic tour of Ezra H. Fitch and his party in three White steamers through the forests of Maine and Quebec. This article is illustrated by the most striking photos ever taken in connection with an automobile event. A fine map of the route which was followed is also included. A postal to us brings a copy by return mail.

WHITE SEWING MACHINE COMPANY

Cleveland, O.

Mesinger Motor Saddle 1906

The ORIGINAL American Motor Saddle



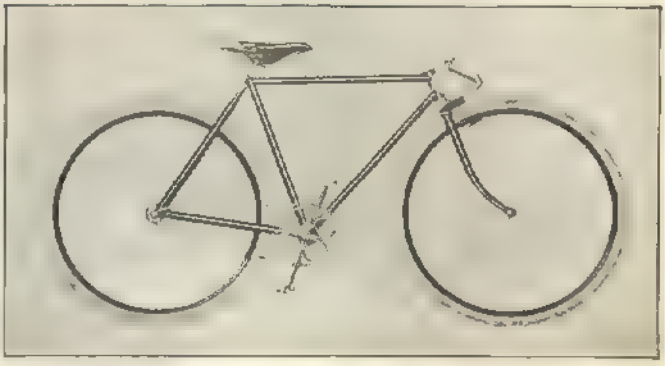
Free action in front suspension spring. Enables the rider to proceed at high speed over all obstructions.

MODEL "AA"

The only coil hair padded suspension saddle. Two telescope springs in the rear makes comfortable riding on rough roads. Makes Motor Cycling more Tractable.

H. & F. MESINGER MFG. CO., 1803-1807 First Ave., New York

Our 1906 Proposition is Now Ready



YALE and SNELL Bicycles for the coming season represent the best there is to be had for the money, quality, construction and reliability considered. They are money-makers for dealers, and satisfaction givers for bicyclists. The 1906 Model of the **YALE** represents the highest point ever attained in the construction of a bicycle. The grace of line, beauty of finish and delicacy of treatment throughout, combined with easy running qualities, are characteristics which place this wheel in a class by itself.

Our line of **SNELL** bicycles for the coming year is an interesting proposition for any dealer. They represent a great value. Write us for catalog and terms

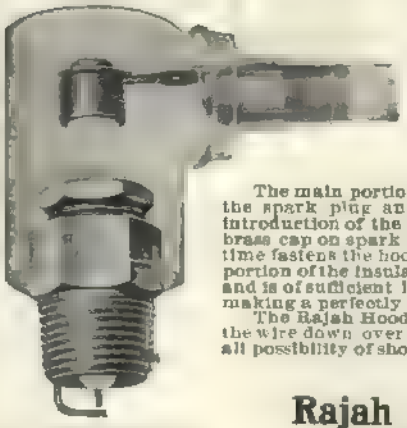
Consolidated Manufacturing Co., Toledo, Ohio.

(Succeeding Kirk Mfg. Co., and Snell Cycle Fitting Co.)

Used by leading merchants for the past two years with absolute success . . . . . .

Builders exclusively of
Commercial Power Wagons
Solid Tires

RAPID MOTOR VEHICLE CO.,
Factories: Detroit and Pontiac
Address all communications to
Pontiac Factory



The Rajah Spark Plug Hood

"RAJAH"

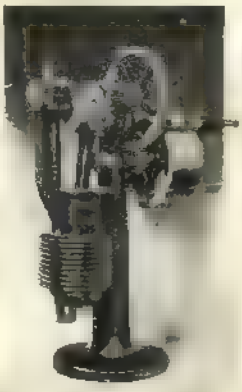
IGNITION ABSOLUTELY SURE

The main portion of the cap is of porcelain, which completely covers the spark plug and has a neck on one side recessed to permit the introduction of the Rajah Clip Terminal, which engages the slot in the brass cap on spark plug, making a perfect connection and at the same time fastens the hood in position. A piece of rubber tuoing covers a portion of the insulation of secondary wire, and ferrule end of terminal and is of sufficient length to be stretched over the neck of the hood making a perfectly water-tight connection.

The Rajah Hood and rubber connection carries the insulation from the wire down over the spark plug to the cylinder head thus obviating all possibility of short circuiting.

Rajah Auto-Supply Company
140 Washington Street, New York City

AIR COMPRESSORS



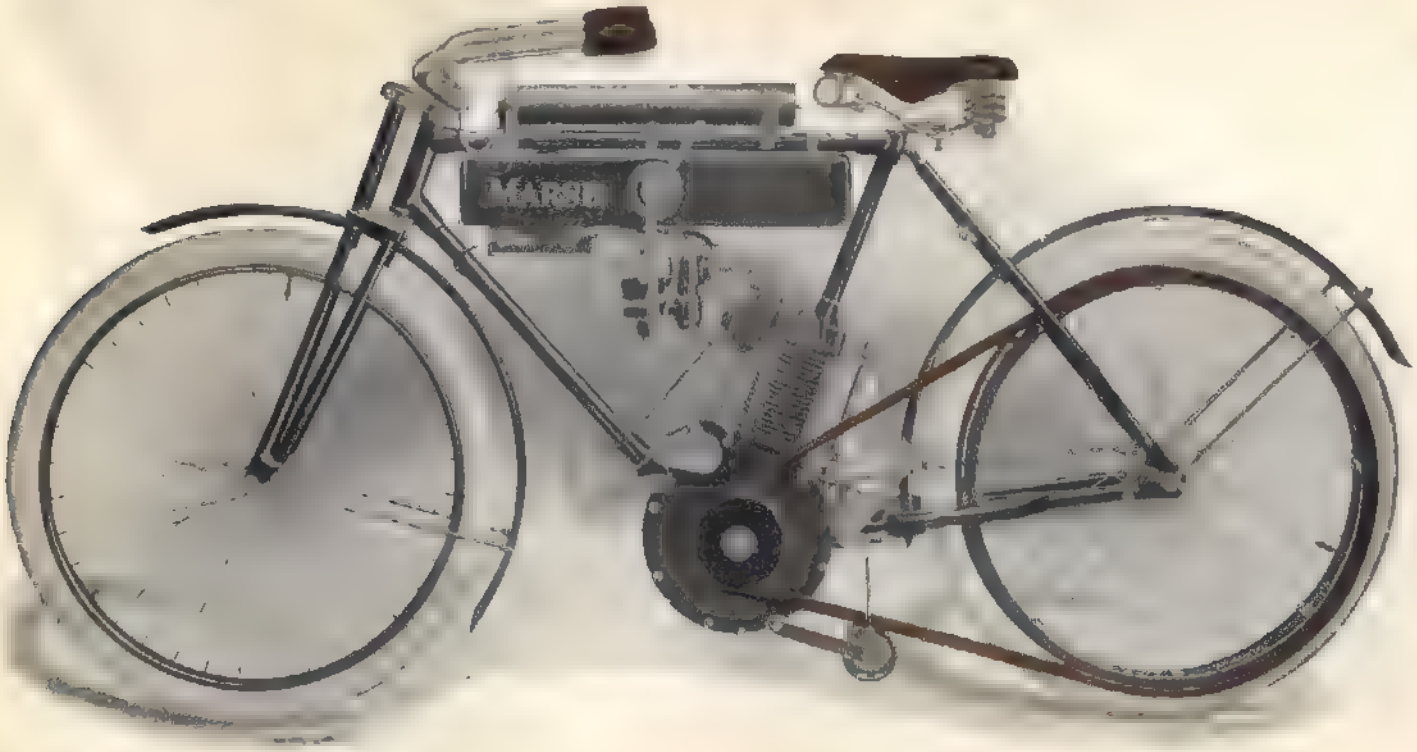
BELTED—DIRECT CONNECTED
SINGLE AND THREE CYLINDER STYLES

Just the thing for public or private garage for inflating tires, cleaning cushions, etc.

Automobile Gear and Sprocket Work
of every description
Transmissions, Automobile Machine Parts, Piston Rings, etc.

Season Contract Work Specially Solicited.
Send us your specifications

The F. W. SPACKE MACHINE CO., Indianapolis., Ind., U. S. A.



Marsh Model D. Improved for 1906. Price $150.00

BY far the best value ever offered for the money. You can't match it at any price outside of the Marsh-Metz line. Too many good points to describe here. Write us for full description and agents' terms.

Four other models in our complete line. Single and double cylinder.

AMERICAN MOTOR COMPANY, Brockton, Massachusetts, U. S. A.

Single Bit Axes.

Old Honesty, Unhandled.

Michigan Pattern.

		Per Dozen
Code Abagio. **No. 50**—Best Cast Steel, Silver Bronzed, Natural Temper Colored Bit.	. . . . .	$12 00

Weights:

3, 3¼, 3½, 3¾, 4, 4¼ and 4½ lbs.

One Dozen in a Case, Shipping Weight, 50 lbs. Per Case.

Old Honesty, Handled.

Michigan Pattern.

		Per Dozen
Code Abagtonik. **No. 51**—With XXX Octagon Handles,	. . . . .	$17.00
Code Abaisance. **No. 52**—With Extra Handles,	. . . . .	16.50
Code Abalter. **No. 53**—With No. 1 Handles,	. . . . .	16.00
Code Abaixo. **No. 54**—With No. 2 Handles,	. . . . .	15.50

Weights:

3, 3¼, 3½, 3¾, 4, 4¼ and 4½ lbs

One Dozen in a Case; Average Weight, 65 lbs. Per Case.

Single Bit Axes.

Robt. Mann's, Unhandled.

Michigan Pattern.

Code Abalizada. — Per Dozen

No. 70—Crucible Cast Steel, Gold Bronzed, Polished Bit, ... $10.00

Weights:
Assorted, 3 to 4, 3½ to 4½ lbs.

Defiance, Unhandled.

Ohio Pattern.

Code Abandero. — Per Dozen

No. 80—Cast Steel, Gold Bronzed, Polished Bit, ... $8.00

Weights:
Assorted, 3½ to 4½ lbs.

One Dozen in a Case; Shipping Weight, 50 lbs. Per Case.

Robt. Mann's, Handled.

Michigan Pattern.

Code Abalizar. — Per Dozen

No. 71—With XXX Octagon Handles, . $15.00

Code Abalizo

No. 72—With Extra Handles, . . . 14.50

Code Abaloriou.

No. 73—With No. 1 Handles, . . . 14.00

Code Abalroa.

No. 74—With No. 2 Handles, . . . 13.50

Weights:
Assorted, 3 to 4, 3½ to 4½ lbs.

Defiance, Handled.

Ohio Pattern.

Code Abandoned. — Per Dozen

No. 84—With No. 2 Handles, . . . $11 50

Weights:
Assorted, 3½ to 4½ lbs.

One Dozen in a Case; Average Weight, 65 lbs. Per Case

A CADILLAC Dealer

Mr. C. C. Henry, of Summit, N. J., who has sold over 40 Single Cylinder Cadillacs since June 15, 1905, recently placed the following four inch double column ad in the two largest local papers published in his locality:

WANTED
SECOND-HAND MODEL F
CADILLAC
at Once. State price
C. C. HENRY
Cadillac Factory Agent
SUMMIT NEW JERSEY

The Jerseyman, Sept 25, 1905

WANTED
Second-Hand Model F
CADILLAC
at Once. State price
C. C. HENRY
Cadillac Factory Agent
SUMMIT, N. J.

Madison Eagle, Sept. 23, 1905

WANTED—A Second-Hand Model F. CADILLAC at once. State price.
C. C. HENRY,
Cadillac Factory Agent

Herald, Summit, N. J

Mr. Henry, writing under date of Oct. 3rd, '05, says:

"I did not get a single reply. No one in this country wants to dispose of their single cylinder Cadillacs."

The above ought to convince most any level headed dealer that the Cadillac agency is a valuable asset.

CADILLAC AUTOMOBILE CO.
DETROIT, MICHIGAN
Members of Ass'n Licensed Auto. Mfrs.

THE MARMON

"A Mechanical Masterpiece"

Front wheel and opposite rear wheel each raised over a foot

Takes the Jolts Out of Rough Roads

Have you ever taken a long ride in an automobile?

At the end of the run were you shaken, jolted, vibrated until you were nearly exhausted?

If so, wouldn't you appreciate a car that would carry you any distance over any kind of road, through ruts, over rocks and bumps, with the easy, gentle sway of a sail-boat, and still go at good speed?

It is safe to say that nobody ever rode in a Marmon over a rough road without realizing that its positive luxury of motion is not only unequaled, but absolutely unknown in other cars, regardless of price or prestige.

The Picture Shows Why

All roads present this condition in small or large degree—here a bump and there a rut, often forcing one wheel to ride through a depression while a wheel on the opposite side passes over an elevation. Unless the automobile possesses flexibility to meet these varying conditions, it means constant, ruinous strain for the mechanism and constant reaction upon the passengers, varying from vibration to jolting.

Other cars are constructed on much the same rigid principle as a farm wagon. In the farm wagon, comfort is not considered nor is there any expensive mechanism to protect. This the automobile has attempted to remedy with springs of various types. But the **unnatural principle** is still there. Strain and discomfort are still there.

The Marmon **does not depend** upon its excellent springs for elasticity. It possesses an exclusive **patented** feature,

Double Three-Point Suspension

Cast aluminum body on one frame, power plant on another frame, **each frame** suspended on three **pivotal** points. Power plant and rear axle are practically a unit, always in alignment. Rigid shaft drive **without universal couplings.** Wheels adjust themselves to the roughest road condition. This elimination of binding and twisting strains means perfect power transmission, greater efficiency with **less wear** for all parts, tires included.

That is just one feature of "A Mechanical Masterpiece." Booklet No. 5 describes it fully. Yours for the asking

Four Cylinders—Air Cooled

AGENTS: We assert that the Marmon has more good talking points—points that appeal instantly and forcefully to buyers—than any other car. High grade in every detail of construction, superb in appearance, there is no better proposition for agents who are in touch with the better class of trade.

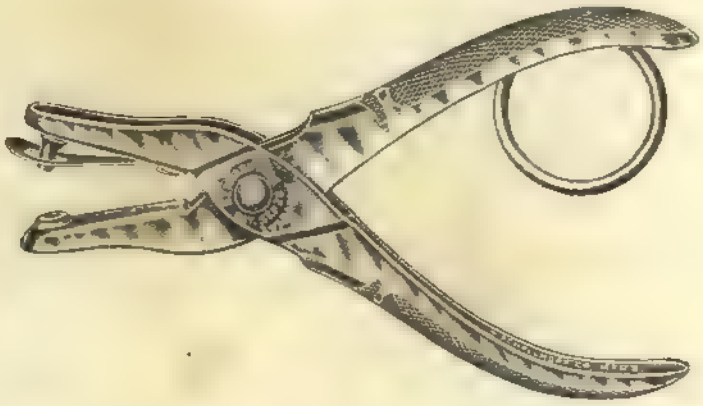
NORDYKE & MARMON CO.

ESTABLISHED 1851

INDIANAPOLIS INDIANA

Member American Motor Car Manufacturers' Association.

Ticket Punches.



Code Allerlei. Per Dozen

No. 26—Canners, Pressed Steel, Polished, ... $4.00

Weight, 2¼ lbs. Per Dozen.

BAKER & HAMILTON

Code Allestiva. Per Dozen

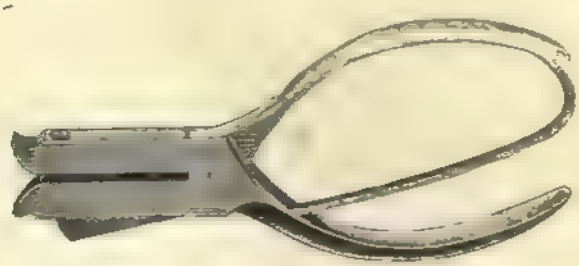
No. 430—Cast Steel, Polished, Assorted Dies, ... $6.50

Weight, 2½ lbs. Per Dozen.

Code Allevaret Per Dozen

No. 37—Cast Steel, Nickel Plated, Assorted Dies, ... $9.00

Weight, 2⅝ lbs. Per Dozen.



Code Allevatare. Per Dozen

No. 425—Cast Steel, Nickel Plated, Extra Assorted Dies, ... $17.00

Weight, 3 lbs. Per Dozen.

Code Allevatore Per Dozen

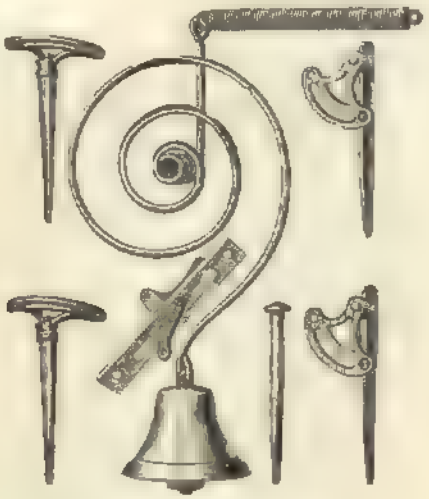
No. 42—Cast Steel, Nickel Plated, Extra Fine Assorted Dies, ... $28.00

Weight, 2¾ lbs. Per Dozen.

Half Dozen in a Box.

The Dies of these Punches are Specially Selected to suit the Canning and Packing Trade.

House Bells on Carriages.



Code Betrusben. Per Dozen
No. 123—2⅝ In., Polished Brass Bell, Complete with Trimmings, ... $11.40
Weight, 8 lbs. Per Dozen
One-Twelfth Dozen in a Package, Complete

Code Betrusted. Per Gross
No. 25—Check Springs, Bright Steel Spring Wire, No. 18, 5 In. Long, ... $6.50
Weight, ½ lb. Per Gross
Quarter Gross in a Box

Alarm Door Bells.

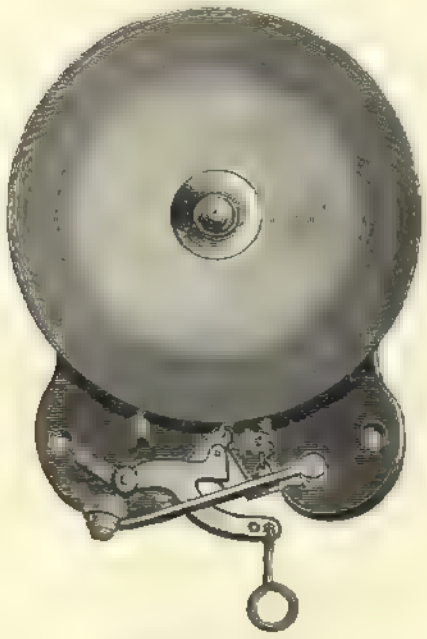
Code Betsmbl. Per Dozen
No. 133—2⅝ In., Polished Brass Bell Japanned Steel Spring, . . $13.50
Weight, 4½ lbs. Per Dozen.
Half Dozen in a Package.

Electric Bell Outfits.

Code Bettdecke. Each
No. 26—Outfit Consists of One Mesco Dry Battery, Iron Box Vibrating Bell One Wooden Push Button, 50 Ft Insulated Wire and Staples. . $2.00

Code Bettelube
Extra Mesco Dry Batteries, . . .50
Weight, 3½ lbs. Each.

Gong Bells.



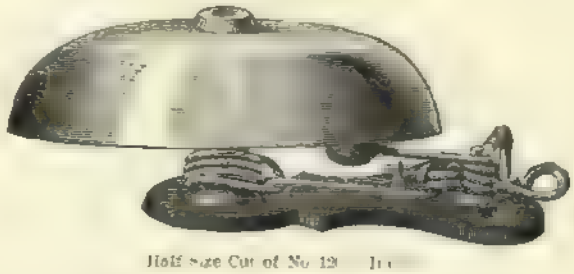
Half Size Cut of 5 Inch

Locomotive.

Polished Bell Metal Bell, Central Pull, Outside Stroke. The 10 In. and Larger Have Lignumvitae Wood Hammers.

Inches.	4	5	6	8	10	12	14	16
Code	Bettelnides.	Bettelnook.	Bettelsack.	Bettelting	Bettelthum	Bettelung	Bettelvolk	Bettelvolk
Weight Per Dozen, lbs.,	22	30	38	72	117	183	202	242
Per Dozen,	$12.70	16.50	24.00	46.00	84.00	150.00	212.00	260.00

One-Twelfth Dozen in a Package



Half Size Cut of No 12

No. 120—Yankee, Bronzed Steel.

Inches,	3	4	5
Code	Bettbu'ter.	Bettbimmel.	Bettklosen.
Weight Per Dozen, lbs.,	14	16	20
Per Dozen,	$4.00	5.00	7.00

One Twelfth Dozen in a Box

The "BANN AUTO"
Wood Wheel

A PERFECT AUTOMOBILE WHEEL
IT WILL RUN PERFECTLY TRUE

THIS WHEEL WAS INVENTED BY

O. B. BANNISTER.
President Muncie Wheel and Jobbing Co.
MUNCIE, IND.,

who is the most experienced manufacturer of Vehicle and Automobile wheels in this country today, and the "Bann Auto" is made under his personal supervision.

It can be made to fit any axle or bearing, and it will run true.

We are also operating an

EXPERIMENTAL MACHINE SHOP

and employ only thoroughly competent draughtsmen and mechanics, and are prepared to furnish working drawings and do experimental work for anyone.

Muncie Wheel and Jobbing Co.
MUNCIE. IND.

MOTOR BOATS

Coming Marine Events

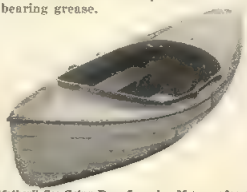
January 29-30—Motor Boat Races at Palm Beach, Florida.
February 26 March 3—National Motor Boat and Sportsman's Show, at Madison Square Garden, New York City. J. A. H. Dressel, Mgr., 1 Madison Ave., New York.

"Mather" Sea-Going Dories

The cut herewith shows a sea-going dory launch recently brought out by C. B. Mather Dory and Launch Corporation, Rowley, Massachusetts, and designed for rough water. The motor, tool box and battery lockers made with sufficient crown and length to give ample room to get around the motor. This compartment is separated from the cockpit by a bulkhead fitted with a large door. Ventilation and light are obtained by a hatch fitted in the deck, though our illustration does not show the same. Under the forward deck is a compartment for tank and storage. The cockpit is sheathed inside. Seats are slatted and run full length of the cockpit on each side. Floor boards are slatted or solid, as desired. The bottoms are of oak, 1½ to 2½ ins. thick (depending on size of hull); planking is of pine, in long lengths, put on lapstreak, 6 to 8 planks on each side. Knees are of white oak, 3 ins. by 1 in., spaced 18 to 24 ins. apart, and are filled in with heavy steam bent timbers. The shelves are of white oak securely riveted to each knee. The deck timbers are of oak, dovetailed to the shelves. Transoms are of oak, 1½ to 2 ins thick, and fastened to the bottoms by heavy oak knees. Decks are of oak or white pine; deck sheers are of oak cut to conform to the shape of the hull. Coamings, or wash boards, are of oak, steam bent to shape, and extend from 3 to 6 ins above the decks. Fastenings are all of galvanized iron.

The planking is finished with three coats of paint above the water; two coats of lead and two coats of copper paint below. Decks, coamings, bulkheads, etc., are finished with three coats of spar varnish. The hull equipment consists of two bow and one stern chock, one bow and one stern cleat, one pair rowlocks, all of brass; one steering wheel near motor and one at forward end of cockpit; balance rudder, shoe and steering gear.

These launches are equipped with a thoroughly reliable motor, installed in the best possible manner. Each motor is carefully tested and is in perfect running order when shipped. All are fitted with bilge pumps and are for use in salt water. Piping is of brass. Tanks are large and made of heavy galvanized iron. With each launch is sent an extra set of batteries, can of cylinder oil and box of bearing grease.



"Mather" Sea-Going Dory Launch. Motor under after deck.

The 22 ft. launch has a beam of 5 ft. 8 ins., and is equipped with a 3½ H. P. motor. Price is $310. Three other stock sizes are made, 25 ft., 5 H. P., 27 ft., 6 H. P., and 30 ft., 7 H. P., listing respectively at $390, $475 and $525.

These dories are fitted with Hubbard, Hartford or Lathrop motors as desired by customers.

Side view "Mather" Sea-Going Dory Launch.

The Motor Boat Club of America was organized at a meeting held at the Hotel Astor, New York City, on October 26. Charles P. Tower, chairman of the regatta committee of the Larchmont Yacht Club, was elected president; H. S. Gamble is the secretary, and the committee on plan and scope is Charles Francis, H. S. Bease, Dr. S. Oppenheimer, A. D. Roach and George J. Vestner. The new club will secure permanent quarters on Riverside Drive and have a thoroughly up-to-date clubhouse. It was decided to negotiate at once with foreign clubs for the purpose of arranging one or more international contests next season. It is intended to make the Motor Boat Club of America what the Automobile Club of America is to automobiling. Over 100 members are already enrolled.

Stevens-Duryea

TOURING CAR - PRICE, $2500

DOES the work of a $3,500 car, and is neither too big nor too little. Has four cylinders, is twenty-horsepower, carries five passengers, and has side door tonneau. This is an up-to-date car, and is a **1906** pattern; **there will be no change in next year's model.**

Ask your auto agent for "The Twentieth Century Hustler" or SEND TO US FOR IT.

J. STEVENS ARMS & TOOL CO.
700 MAIN STREET
CHICOPEE FALLS, MASS., U. S. A.
Members Association Licensed Automobile Manufacturers

CROWN

MOTOR
2 Cycle, 2 Cylinder, 14 B. H. P.
Carrying Capacity, 1500 lbs.
Price, $1150

Without doubt the 2-cycle is the coming motor, and this is the only Delivery Car on the market driven by this style engine.

Competitive demonstrations have proven that the Crown is the simplest, most durable and in every way the most satisfactory commercial vehicle yet produced. Inquiries pouring in from every direction.

Body made any style to suit purchaser, or if desired, price will be made on complete chassis without body. Solid Tires unless otherwise specified.

Write for particulars.

Detroit Auto Vehicle Co. Detroit, Mich.

Cleveland

THE complete Chassis of the CLEVELAND car is manufactured by the Garford Company, whose experts have designed and built more high grade automobile parts and complete Chassis than any other concern in America, and the CLEVELAND is therefore the product of years of practical experience.

No other American car is made of such uniformly perfect and high grade material adapted to the purpose, or so thoroughly and intelligently assembled. There is no car on the American market that will stand up to its work so well or so long.

The new 1906 30-5 CLEVELAND is confidently expected to be the most perfect American car ever manufactured. Two cylinders are cast in pairs and have 4½ inch bore, 5 inch stroke.

The CLEVELAND Ignition System is the most reliable known, with automatic make and break spark. This mechanism is of the best design and construction and is wound to carry almost any spark from close contact to 1/2 inch, and it can be adjusted while running. The CLEVELAND is the only car with Simms-Bosch low tension magneto ignition, of which it has been the pioneer user by over 5 years, and for the season of 1906.

The transmission is of the sliding gear pattern. The shafts and bearings are ground accurately to size. The gears—the hearts of the transmission—are high carbon steel, oil hardened, thus ring smooth running and long service. Three speeds forward and reverse with direct drive, 8 to 10 miles per hour on third speed.

The CLEVELAND Chassis is built after the most approved type and has a compensating side spacing, permitting perfect mixture at all speeds and loads, thus making the CLEVELAND easy to operate and to control.

The 1906 CLEVELAND will weigh 2,200 lbs. and is sold at a little more than

Fifty cars only are to be made with very CLEVELAND car shows our faith in its quality

Price $3500 00.

Catalogue and full information on request

Mr. E. B. GALLAHER,
228-30 West 58th Street, New York
General Eastern Distributing Agent

CLEVELAND MOTOR CAR COMPANY
Dept. 2 CLEVELAND, OHIO

Stoddard-Dayton

The Model D is our 1906 Car

It is made for those automobile buyers who want something better than the general run of motor cars and yet who want to pay a fair but not an exorbitant price.

Contains every detail and every modern mechanical feature constituting an up-to-date automobile.

4 cylinder vertical motor. 4½x5 cylinders.

Sliding gear transmission of unique construction

Clutch driven type rear axle.

Three internal expanding brakes.

Timken Roller Bearings in wheels, axle and transmission.

2100 pounds of 4" tires and many other valuable features.

A few high-class Agents wanted for unoccupied territory.

Advance Booklet ready—Catalogue later

DAYTON MOTOR CAR CO.

DAYTON, O.

Chicago, McDuffee Auto Co.
N. Y. Stoddard-Dayton Agency, 59th and Broadway.
Boston, Randlff Motor Car Co.
Indianapolis, F. L. Moore

Hose Pipes

Cast Brass

No. 10—Plain Hose Pipes, Screw Tip

Size, Inches	¾	1	1¼	1½	2	2½
Length, Inches	8	8	12	12	12	15
Per Doz	$8 00	10 00	20 00	25 00	38 00	75 00

No. 11—Hose Pipes with Cock, Screw Tip

Size, Inches	¾	1	1¼	1½	2
Length, Inches	8	8	12	12	12
Per Doz.	$13 00	15 00	40.00	55 00	80 00

All above have Pacific Coast Threads

Hose Nozzles

Oakland—¾-in. Hose, Cast Brass, Adjusts to a Straight Stream or a Fine, Fan-like Spray — Per Doz. $6 00

Gibbs ¾-in. Hose, Cast Brass, Adjusts to a Straight Stream or a Fine Spray . . . . — Per Doz. $6.00

Magic—¾ in. Hose, Cast Brass, Adjusts to a Straight Stream or a Fine Spray..... — Per Doz. $7.50

Diamond ¾ in. Hose, Drawn Brass, Adjusts to a Straight Stream or a Fine Spray..... — Per Doz. $6 00

Lawn Sprinklers

Little Wonder—Made of Gray Iron, Enameled Red, stands about 1¾-in. high and the base is 1½×3¾-in. and gives a Finely Divided, Well Distributed, Misty Spray, Threaded for ¾-in. Hose..... — Per Doz. $3.00

Busy—The Shell-shaped Part Revolves, Distributing the water over a large area; made of Gray Iron Copper Plated Mounted on a Cast-iron Sled, Japanned, about 6½ in. high, for ¾-in. Hose..... — Per Doz. $12.00

FIG 2492

SINGLE FRAME HAMMERS.

The illustration shows the general construction of all of our single frame hammers.

The ram is set at such an angle with the frame that skew dies are not necessary, and work of full width of dies and of any length will clear the frame when drawing or finishing.

We furnish these hammers in the following sizes:

Size Lbs	Diam.	Stroke	Face of Ram	Usual Die Face.	C of Die to Frame	Steam.	Exhaust	Weight Lbs.	Price.
200	5"	16	5 x 7½	4 x 7	12½	1½	2	4400	
250	5"	16	5½ x 7½	4½ x 7	12½	1½	2	5000	
400	6"	19	6 x 9	5 x 8½	15	1½	2	7700	
600	7"	22	7 x 11	5 x 11	17½	2	2½	11000	
800	8"	25	8 x 13	6 x 12½	20	2	2½	14000	
1100	10"	28	8½ x 13½	6 x 13	22½	2½	3	18000	
1250	11"	30	9 x 13½	7 x 13	23½	2½	3	23000	
1500	12"	33	9 x 16	7 x 14½	25	2½	3	28000	
2000	13"	36	10 x 17	8 x 16	27½	2½	3	35000	
2500	14"	39	10½ x 17½	8 x 17	30	3	4	42000	
3000	15"	42	10½ x 16	8½ x 18	33	3	4	48000	
3500	16"	45	11 x 19	8½ x 18	33	3½	4½	56000	
4000	17"	42	12 x 20	9 x 20	33	3	4½	65000	
4500	18"	42	13 x 21½	10 x 21	48	4	5	75000	
5000	20'	48	14 x 22½	11 x 22	48	4	5	85000	

Also Double Frame Steam Hammers, Steam Drop Hammers and Steel Working Hammers.

"STILES"

FRICTION ROLL DROP HAMMERS

FIG 2403

This drop was designed to meet the demands for a drop hammer of solid construction with little or no repairs, correct proportions and strong and simple construction.

"BLISS" SQUARING SHEARS.

These shears are very strong, heavy and substantial and are especially valuable for cutting block iron. They are designed to meet the demand for a tool of greater accuracy and strength than the ordinary cheaply built shear in the market.

FIG. 2404

DRESSED DOLLS—Continued.

We do not Break Packages.

3220-8½ Dressed Negro Doll. Paper mache head, glass eyes, curly hair, paper mache arms and feet, flexible hips, striped print dress, lace edging around neck. Height, 11 in. 1 dozen in box.
Per doz., $0.85

3221-8½ 3222-8½

3221-8½ Dressed Doll. Movable bisque head, long Rembrandt hair, glass eyes, paper mache hands and feet, painted shoes and stockings, assorted colors tarletan dresses with ruffle on bottom, lace trimmed yoke, hats to match dress. Height, 9 in. ½ dozen sewed in display box. 2 boxes in pkg.
Per doz., $0.85

3222-8½ Dressed Doll. Movable bisque head, glass eyes, Rembrandt hair, paper mache hands and feet, painted shoes and stockings, mercerized cotton dress, large yoke trimmed with lace edging, large bonnet to match dress. Height, 8½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg.
Per doz., $2.85

3223-8½ 3224-8½

3223-8½ Dressed Doll. Movable bisque head, glass eyes, Rembrandt hair, paper mache hands and feet, painted shoes and stockings, white Swiss dress with ruffled yoke trimmed with lace edging, colored ribbon around bottom of dress, white Swiss hats. Height, 8½ in ½ dozen sewed in display box. 2 boxes in pkg.
Per doz., $0.85

3224-8½ Dressed Doll. Movable bisque head, long Rembrandt hair, glass eyes, assorted colored cotton dresses trimmed with lace edging around bottom, colored yoke trimmed with lace edging, hat to match dress. Height, 8½ in ½ dozen assorted sewed in display box. 2 boxes in pkg.
Per doz., $0.85

3226-12½ 3227-12½ 3228-12½

3226-12½ Dressed Doll. Paper mache movable arms and legs, bisque head, glass eyes, Rembrandt hair, assorted colored mercerized cotton dresses, fancy pleated waist trimmed with lace edging, real shoes and stockings. Height, 10 in. ½ dozen in box. 1 dozen in pkg
Per doz., $1.25

3227-12½ Dressed Doll. Paper mache movable arms and legs, bisque head, with painted eyes, Rembrandt hair, painted shoes and stockings fancy knitted dress and hat. Height, 5½ in ½ dozen assorted in display box. 2 boxes in pkg.
Per doz., $1.25

3228-12½ Dressed Doll. Movable bisque head, glass eyes, Rembrandt hair, painted shoes and stockings, movable paper mache arms and legs. fancy knit wool dress and hat. Height, 5¼ in. ½ dozen sewed in display box. 2 boxes in pkg.
Per doz., $1.25

3229-12½ Dressed Doll. Large movable bisque head, paper mache movable arms and legs, glass eyes, Rembrandt hair, assorted colored tarletan dresses with ruffle collar, painted shoes and stockings, large bonnet to match dress Height, 10 in Each in box. 1 dozen assorted in pkg
Per doz., $1.25

3231-15 3236-17½

3231-15 Dressed Doll. With movable arms and legs, paper mache arms and legs, painted shoes and stockings, movable bisque head, glass eyes, long Rembrandt hair, flowered organdie dress, pleated waist with large lace revers Height, 10 in Each in a box. 1 dozen assorted in pkg
Per doz., $1.50

3236-17½ Dressed Doll. Paper mache movable limbs, large bisque head, glass eyes, long Rembrandt hair, dressed in colored mercerized cotton dress, large collar trimmed with lace edging, large size bonnet trimmed with lace edging to match dress. Height, 9½ in. Each in a box. ½ dozen assorted in pkg.
Per doz., $1.75

3239-20 3243-22½

3239-20 Dressed Doll. Movable arms and legs, large bisque head, glass eyes, Rembrandt hair, mercerized cotton dress. revers trimmed with wool, large size bonnet trimmed with lace to match dress, real shoes and stockings. Each in box. ½ dozen assorted in pkg.
Per doz., $2.00

3243-22½ Esquimaux Doll. Dressed in genuine fur, movable limbs, bisque head with glass eyes, painted shoes and stockings, colored flannel cap. Height, 9½ in. ½ dozen assorted in box.
Per doz., $2.25

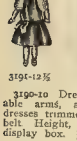
Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

CARSON PIRIE SCOTT & CO.

DOLLS.

DRESSED DOLLS.

We do not Break Packages.



3191-12½ 3192-4 3194-4

3190-10 Dressed China Doll. Movable arms, assorted colors tarletan dresses trimmed with lace edging, gilt belt. Height, 2¾ in. 1 doz. sewed in display box. ½ gross in pkg.
Per gross, $1.00

3191-12½ Dressed China Doll. Movable arms, imitation hat, assorted colors tarletan dresses trimmed with lace edging, gilt belt. Height, 2¾ in. 1 dozen sewed in display box. ½ gross in pkg
Per gross, $1.25

3192-4 China Doll with Baby. Movable arms, painted hair and eyes, assorted print dresses trimmed with lace edging. Height, 3¾ in. Each in a box. 1 doz. assorted in pkg.
Per doz., $0.40

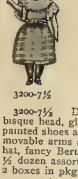
3194-4 Dressed Doll. Bisque head, short curly hair, paper mache movable arms and legs, painted eyes, colored tarletan night-dresses and hat. Height, 5¼ in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.40**

3195-4½ 3196-4½

3195-4½ Dressed Doll. Movable bisque head, glass eyes, short curly hair, paper mache movable arms and legs, assorted colored tarletan dresses trimmed with lace edging, lace hat, painted shoes and stockings. Height, 5½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg **Per doz., $0.45**

3196-4½ Dressed Doll. Movable bisque head, paper mache movable arms and legs, glass eyes, painted shoes and stockings, short curly hair, assorted colored tarletan dresses trimmed with ruffle around bottom, hat to match dress. Height, 4½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg.
Per doz., $0.45

3165-7½ Dressed Doll Movable bisque head, glass eyes, Rembrandt hair, painted shoes and stockings, assorted colored tarletan dresses trimmed with lace around bottom, lace yoke, hat to match dress. Height, 6½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.75**



3200-7½ 3201-7½ 3202-7½

3200-7½ Dressed Doll. Movable bisque head, glass eyes, short curly hair, painted shoes and stockings, paper mache movable arms and legs, Swiss dress and hat, fancy Bertha collar. Height, 5½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.75**

3201-7½ Dressed Doll. Movable arms and legs, bisque head, glass eyes, curly hair, assorted cotton crepe and dimity dresses with lace trimmed collar, hats trimmed with lace edging and ribbon bow. Height, 5½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.75**

3202-7½ Dressed Doll. Paper mache movable arms and legs, bisque head, glass eyes, curly hair, assorted cotton crepe and dimity dresses, yoke trimmed with lace edging, lace trimmed hat to match dress. Height, 6 in. ½ dozen assorted sewed in display box. 2 boxes in pkg **Per doz., $0.75**

3204-7½ 3206-7½ 3207-7½

3204-7½ Sailor Doll. Assorted boys and girls, paper mache movable arms and legs, bisque head, glass eyes, curly hair, light blue cambric sailor costume, large collar trimmed with ribbon bow. Height, 6 in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.75**

3206-7½ Dressed Doll. Movable bisque head, glass eyes, short curly hair, paper mache hands and feet, painted shoes and stockings, colored Swiss dress with large white collar band, hat to match dress. Height, 5½ in. ½ dozen sewed in display box. 2 boxes in pkg. **Per doz., $0.75**

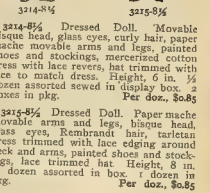
3207-7½ Dressed Doll. Paper mache movable arms and legs, bisque head, glass eyes, long Rembrandt hair, assorted colored tarletan dresses trimmed with lace, colored hats to match dress. Height, 8½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.75**

3209-8½ 3211-8½ 3213-8½

3209-8½ Dressed Doll. Movable bisque head, glass eyes, short curly hair, painted shoes and stockings, paper mache movable arms and legs, flannel dress trimmed with lace, colored hat to match dress. Height, 5½ in. ½ dozen assorted in display box. 2 boxes in pkg.
Per doz., $0.85

3211-8½ Dressed Doll. Bisque head, glass eyes, curly hair, paper mache arms and legs, mercerized cotton dress, puffed waist, revers trimmed with lace edging and ribbon bows. Height, 6 in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.85**

3213-8½ Dressed Sailor Doll. Movable bisque head, glass eyes, curly hair, paper mache movable arms and legs, colored print dress, fancy sailor collar trimmed with white braid, ribbon bows, painted shoes and stockings. Height, 5½ in. ½ dozen assorted sewed in display box. 2 boxes in pkg
Per doz., $0.85



3214-8½ 3215-8½

3214-8½ Dressed Doll. Movable bisque head, glass eyes, curly hair, paper mache movable arms and legs, painted shoes and stockings, mercerized cotton dress with lace revers, hat trimmed with lace to match dress. Height, 6 in. ½ dozen assorted sewed in display box. 2 boxes in pkg. **Per doz., $0.85**

3215-8½ Dressed Doll. Paper mache movable arms and legs, bisque head, glass eyes, Rembrandt hair, tarletan dress trimmed with lace edging around neck and arms, painted shoes and stockings, lace trimmed hat. Height, 8 in. ½ dozen assorted in box. 1 dozen in pkg. **Per doz., $0.85**

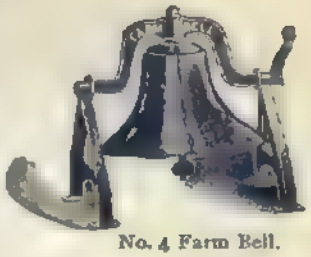
Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

FREDERICKTOWN FARM BELLS.

Twentieth Century Pattern.

No. 1 to 3 Farm Bell.

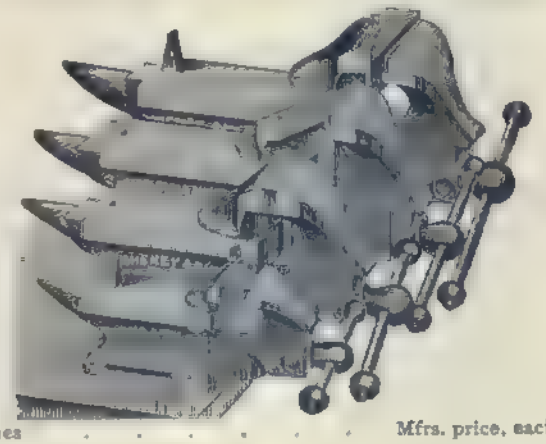
The superior quality of bell metal used in the Fredericktown Bell, creates a volume of sound and purity of tone unexcelled. There is no uncertainty as to its merits. We can give no stronger proof of this than to call your attention to the fact that they have been in use and have given good satisfaction for over one-half century.



No. 4 Farm Bell.

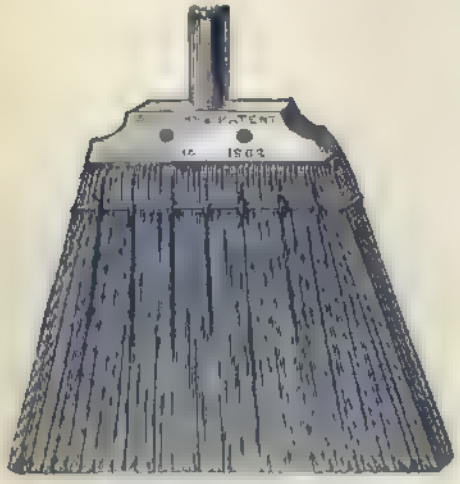
No. 1	Farm Bell,	15	in.	diameter.	Weight	complete,	40	lbs.				Mfrs. price, each,			$4.00.	Our net price, each,				$3.60
" 2	"	"	17	"	"	"	50	"				"	"	"	5.00.	"	"	"	"	4.50
" 3	"	"	19	"	"	"	75	"				"	"	"	7.50.	"	"	"	"	6.75
" 4	"	"	21	"	"	"	100	"				"	"	"	10.00.	"	"	"	"	9.00

COMBINED ANVIL AND VISE.

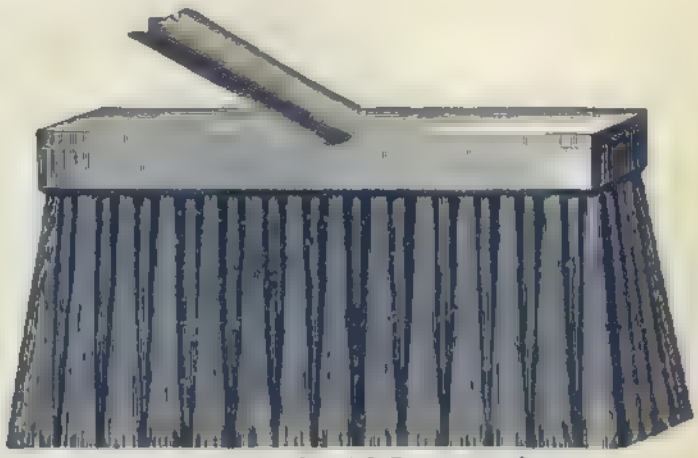


No. 10,	weight	9	lbs.,	jaws	open	3	inches						Mfrs. price, each,			$3.50	Our net price, each,				$3.25
" 20,	"	25	"	"		4	"						"	"		4.50	"	"			[illegible]
" 30,	"	35	"	"		5	"						"	"		5.50	"	"			5.25
" 40,	"	50	"	"		6	"						"	"		6.50	"	"			[illegible]

RATTAN BROOMS.



Upright Rattan Broom.

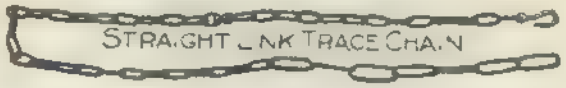


Rattan Push Broom (Special Contractors).

Upright Rattan Broom, Alden Pattern												Mfrs. price, per doz.,			$ 8.00	Our net price, each,				$0.55
"Special Contractor's" Rattan Broom, 5 Row, Extra Heavy, 16 in.												"	"		12.00	"	"			1.00
Contractor's Rattan Broom, Extra Heavy, 16 in., with Steel Scraper,												"	"		18.00	"	"			1.25
Bamboo Push Brooms, very serviceable												"	"		10.00	"	"			.75

Prices include handle.

BRIGHT TRACE CHAINS.



| | | |

CLARK'S HILL CLIMBING FRICTION TOYS—Continued.

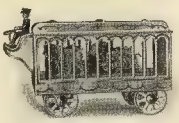
4642-40 Hill Climbing Automobile Racer. Equipped with new Internal Gear propeller movement with steel pinion. Can be run either backward or forward or in a circle. Also equipped with new wheels punched out of sheet steel, making the strongest and prettiest wheel on the toy market Length, 9 in. Width, 4½ in. Height, 6 in **Per doz., $4.00**

4643-40 Hill Climbing Hose Wagon. This combination or hose wagon is an exact reproduction in miniature of the latest hose wagons used in all the principal cities. Has a reel adjusted so as to reel the hose automatcaly while the wagon is in motion. Brightly painted and contains two figures Equipped with full friction power movement Length, 11 in. Width, 4½ in. Height, 7½ in. **Per doz., $4.00**

4644-85 Hill Climbing Locomotive An exact representation of a large American locomotive; has steel tender and cab, double action reversible piston rods and an automatic gong which rings when the engine is run either backward or forward. Coupling attachments of a new pattern are provided so that other cars may be attached. The engine is powerful enough to pull a dozen cars. Equipped with new full friction power movement. Engine length, 18½ in.;width 5 in.; height 7 in. **Per doz., $8.50**

4645-85 Hill Climbing Automobile. An entirely new model, patterned after the latest and most fashionable styles in automobiles on the market Contains three tastefully painted passengers Much attention has been given to detail and finish of this toy, and it will surely prove a big seller. No better toy could be made at any price. Equipped with full friction power movement and can be run at a high speed Length, 10½ in. Width, 4¼ in Height, 8 in **Per doz., $8.50**

4646-85 Hill Climbing Hook and Ladder. True model of the new automobile hook and ladder wagon now in use in the large cities This is entirely a new movement and pronounced the finest, safest and best power ever placed in a toy. Made entirely of steel, carrying an extension ladder and standpipe, enabling the child to run the toy up to the supposed fire, and by a clever arrangement, extending the ladder to fight it. Equipped with new internal gear propelling movement and carrying an automatic gong which rings when wagon is run either backward, forward or in a circle **Per doz., $8.50**



4647-85 Hill Climbing Circus Menagerie. Is a faithful reproduction, in miniature, of the average gorgeous circus menagerie wagon, and contains four ferocious animals, all of which move cleverly in the cage as the toy runs on the floor. This piece is exceptionally well finished and will undoubtedly prove a large seller. It alone will brighten up the toy department and fill the great demand for "something new." Equipped with new patent internal gear movement with steel pinion. Length, 14¾ in Width, 5 in Height, 9½ in **Per doz., $8.50**

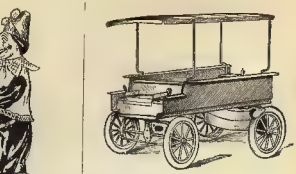
4648-120 Hill Climbing Automobile. An exact reproduction in miniature of the latest style auto on the market; is large and roomy and contains three tastefully painted figures. This machine is equipped with patent internal gear movement, and has the steel pinion which is guaranteed as servicable and durable as the "Famous Friction Power Toys." This machine is very speedy, and can be run either backward or forward. Equipped with new internal gear movement, and can be run at very high speed either backward or forward. Length, 12½ in. Width, 5½ in. Height, 7½ in. **Per doz., $12.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

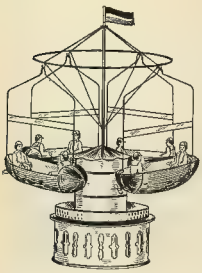
MECHANICAL TOYS.—Continued.

5525-90 Mechanical Orchestra. Made of heavy tin, painted in bright colors, striped with gold, when handle is turned all musicians move arms and play music. Diameter, 9 in Height, 8 in Each in box. **Per doz., $9.00**

5529-90 Mechanical Clown Drummer. Made of heavy tin, painted in bright colors, solid metal feet, clown dressed in fancy costume trimmed with lace, spring power, clown walks, moves feet in natural manner and beats drum and cymbals. Height, 10 in. Each in a box. **Per doz., $9.00**



4026-90 Mechanical Auto-truck with Brake. Made of enameled rolled steel, solid gilt metal wheels with rubber tires, adjustable canopy top, new improved running gear, will run straight or in a circle. Length, 11 in. Height, 10½ in **Per doz., $9.00**

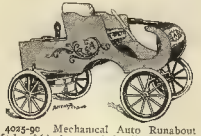


5527-90 Mechanical Airship Toy Made of tin, painted in bright colors, spring power, plays music and ships go around in a circle. Height, 12½ in. Each in a box. **Per doz., $9.00**

5530-90 Mechanical Tooting Automobile with Brake. Made of heavy tin, painted in bright colors, striped with gold, rubber tires, will run straight or in a circle Length, 8 in Each in a box. **Per doz., $9.00**

5531-90 Mechanical Horse and Buggy. Made of heavy tin, painted in bright colors, striped with gold, rubber tired wheels, will run straight or in a circle, horse has a trotting motion, driver moves arms and whips horse. Length, 13 in Each in a box. **Per doz., $9.00**

5528-90 Mechanical Automobile. Solid metal wheels with rubber tires, painted in bright colors Length, 8½ in. Each in a box. **Per doz., $9.00**



4025-90 Mechanical Auto Runabout Made of black enameled rolled steel, improved running gear, solid metal wheels with rubber tires, plush seat, will run straight or in a circle. Length, 11 in. **Per doz., $9.00**

CLARK'S "HILL CLIMBING" FRICTION TOYS.

4640-40 Hill Climbing Automobile Modeled after one of the newest racing machines, and a very fast runner itself. Brightly painted and carrying two neatly painted figures—the chaffeur and passenger. A wonder for the money. Equipped with full friction movement. Length, 8 in Width, 4 in. Height, 7¼ in **Per doz., $4.00**

4641-40 Hill Climbing Police Patrol. A popular design for boys, modeled after the familiar open police vehicle commonly seen in large as well as small cities A strong, servicable toy Honest value. Equipped with full friction movement. Length, 10 in. Width, 4 in. Height, 7¼ in **Per doz., $4.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

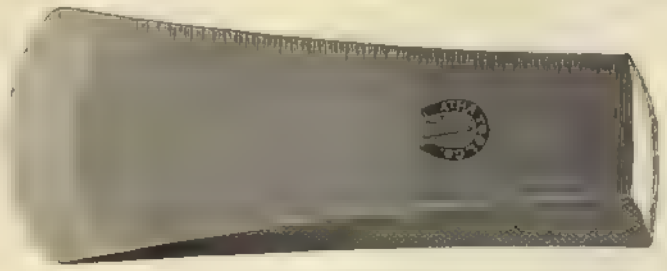
Woodchoppers Wedges

Truckee Pattern
Solid Cast Steel, Oil Finish

No.		Per Pound
980	Weights, 5, 6, 7, 8 and 9 Pounds	$0 36

Oregon Pattern
Solid Cast Steel, Oil Finish

No.		Per Pound
990	Weights, 5, 5½, 6, 7, 8, 9 and 10 Pounds	$0 36

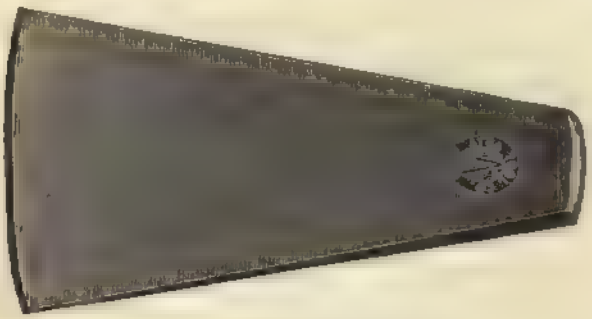


Cedar Pattern
Solid Cast Steel, Oil Finish

No.		Per Pound
1000A	Weights, 5, 6, 7, 8, 9 and 10 Pounds	$0 36

Townsend Falling Pattern
Solid Cast Steel, Oil Finish

No.		Per Pound
995	Weights, 6, 7, 8, 9 and 10 Pounds	$0 40



Townsend Bucking Pattern
Solid Cast Steel, Oil Finish

No.		Per Pound
996	Weights, 5, 6, 7 and 8 Pounds	$0 40

Harmon
Malleable Iron, Hardwood Handle

	Per Doz.
Wedges, Weight, 4¾ to 5¼ Pounds	$15 00
Extra Hardwood Heads	3.00
Extra Wrought Iron Rings	2.00

Coal Wedges

Pittsburg Pattern
Solid Cast Steel, Oil Finish

No.		Per Pound
1030	Weights, 1½, 2, 2½ and 3 Pounds	$0 36

Axe Wedges

No.		Per Doz.
	Malleable Axe Wedges	$1 00

Surface Picks

Railroad
Cast Steel, Painted Black, Polished Points

Weight, Pounds, Assorted	5 to 6	6 to 7	
Per Doz.	$14.00	15.00	

Two Dos. in a Case

Contractor's Double Point
Cast Steel, Painted Black, Polished Points

Weight, Pounds	8
Per Doz.	$17.00

Drifting Picks

Washoe
Soft Steel Eye, Extra Cast Steel Points

No.	1	1½	2	3	4
Weight, Pounds	3	3½	4	4½	5
Per Doz.	$12.50	13 25	14 00	15 00	16 00

Two Doz. in a Case

Langley Special

No.	40	45	50
Weight, Pounds	5	5½	6
Per Doz.	$18.00	19.80	21.60

Two Doz. in a Case

Coal Picks

Bealls, Short Ear Cutting
Iron Eyes, Steel Points

No.	1	1½	2
Weight, Pounds	2½	2¾	3
Per Doz.	$9 00	9 50	10 00

Three Dos. in a Case

Poll Picks

Washoe
Soft Steel Eyes, Extra Cast Steel Points

No.	1	2
Weight, Pounds	4	4½
Per Doz.	$16 00	17 00

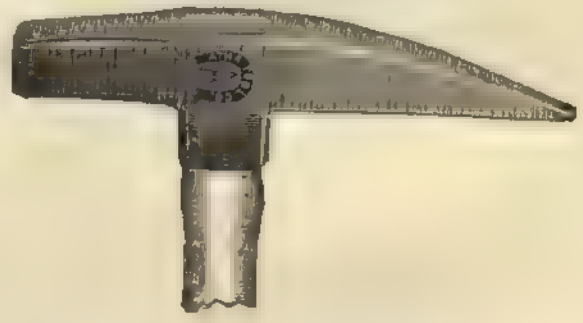
Two Dos. in a Case

Pick Eyes

Washoe Drifting
Soft Steel, ready for Points

No.	1	2	3	4
Weight, Pounds	2½	3	3½	4
Per Doz.	$7 50	8 00	8 50	9 00

Prospecting Picks



Solid Cast Steel, Polished, Handled

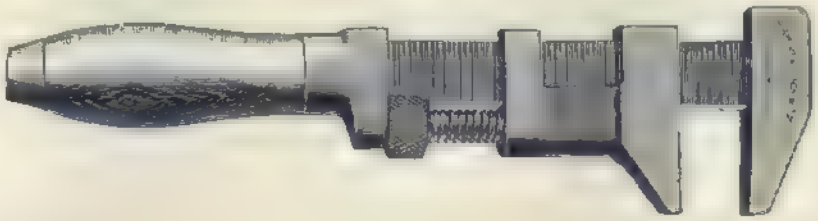
No.	251	252
Weight	1 lb.	1 lb. 8 oz.
Per Doz.	$15 00	16 00

COE'S GENUINE SCREW WRENCHES.

Improved patent knife handle.

6 inch, black, opens	⅞ inch			Mfrs. price, per doz.,	$9.00	Our net price, each,	$0.60
8 " " "	1¼ inches			" "	10.00	" "	.70
10 " " "	1¾ "			" "	12.00	" "	.80
12 " " "	2⅛ "			" "	14.00	" "	.95
15 " " "	2⅝ "			" "	24.00	" "	1.60
18 " " "	3 "			" "	30.00	" "	2.00
21 " " "	4⅛ "			" "	36.00	" "	2.40

AGRICULTURAL SCREW WRENCHES.



6 inch wrought bar, opens	¾ inch			Mfrs. price, per doz.,	$9.00	Our net price, each,	$0.40
8 " " "	1¼ inches			" "	10.00	" "	.50
10 " " "	1¾ "			" "	12.00	" "	.60
12 " " "	2⅛ "			" "	14.00	" "	.70

THE CHAMPION CARRIAGE WRENCH.

The simplest, easiest to operate, and best carriage wrench ever invented, fits any size nut. No screws or thumb nuts to adjust. A simple pressure of the finger opens the jaw. No more dirt and grit on the nut, or oil on the hands. The nut is held firmly in the jaws, preventing the possibility of its falling in the dirt, which often occurs with all other wrenches. Only one hand needed to operate, and so cheap every one can have one.

Champion carriage wrench	Mfrs. price, per doz., $7.50	Our net price, each, $0.50

THE ELGIN ADJUSTABLE WRENCH.

The Elgin Adjustable Wrench is 7 inches long, fully nickel plated and is made to do the work any 8 inch wrench will do whether Nut or pipe wrench.

Elgin Wrench	Mfrs. price, per doz., $12.00	Our net price, each,	$1.00
Extra Jaws	" " 3.00	" "	.25

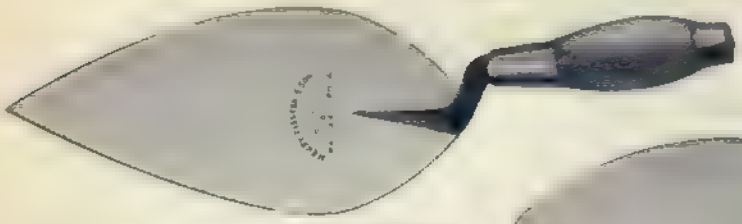
Patent Applied for.
Rethreading Attachment.

The rethreading attachment can be attached to the 1905 pattern Elgin wrenches. It is a ratcheting attachment and will rethread damaged bolts in corners and angles without removing bolt from its position to a vice. Extra dies can be had in ¼, $\frac{7}{16}$, ⅜, $\frac{7}{15}$ and ½ inch (Bolt Standard Thread).

With this attachment the Elgin wrench is the most perfect tool made and is fully guaranteed.

Attachment with one die	Mfrs. price, per doz., $12.00	Our net price, each,	$1.00
Extra dies	" " 6.00	" "	.50

BRICK TROWELS.



Boston Pattern.

Lowell Pattern.

| | | |

VERTICAL BORING AND TURNING MILL.

54-INCH.

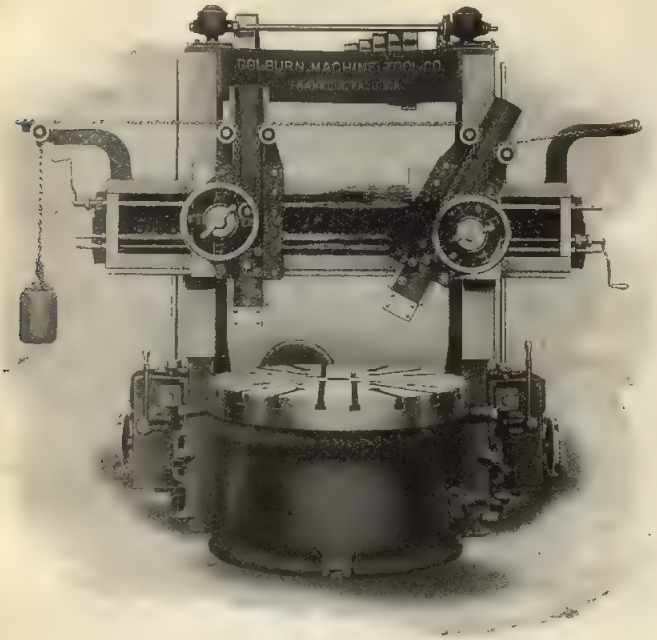


FIG. 2453.

The capacity of this mill is full 54 inches in diameter and will take 48 inches under the cross rail. This mill is built to stand the heaviest cuts with high speed steels. It is of massive proportions and is the heaviest mill of its swing on the market.

Swing	54 inches
Maximum distance under cross rail	48 "
Table diameter	50 "
Travel of rams	26 "
Diameter of tool holder shanks	3 "
Largest diameter of cone pulley	20 "
Smallest diameter of cone pulley	10½ "

HORIZONTAL BORING MACHINE.

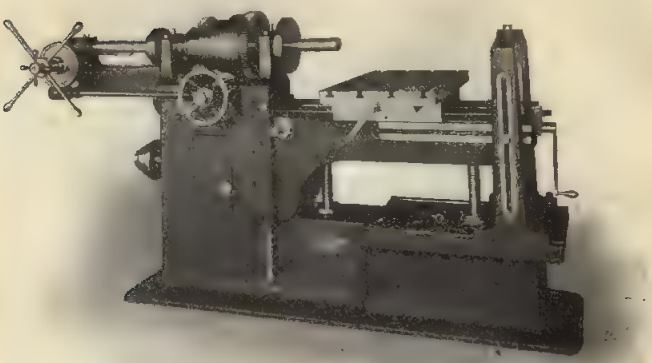


FIG 8452

This machine is well adapted to general work. Although designed for a medium-sized machine, its strong working parts, together with its heavy column and rigid bar support, make it especially useful for the larger class of work.

The Spindle is 2½ inches in diameter and will feed 20 inches. The feed is worked by hand, by means of the wheel at the left of the knee, and is made automatic by turning the friction knob. There are four changes of feed. Quick movement is given to the spindle by turnstile at left of the cut. The hole in front end of spindle is B. & S. taper No. 10.

(Complete description sent upon application.)

Collins' Hatchets.

Broad.

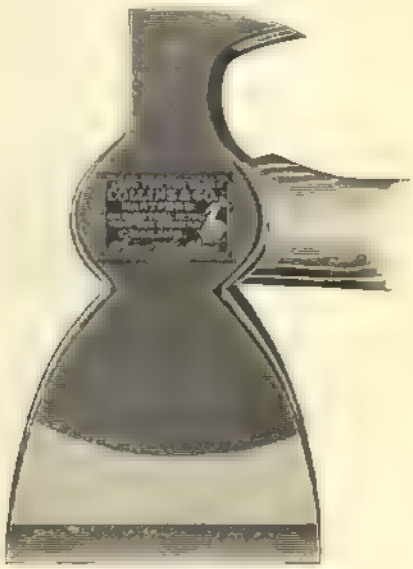
Best Cast Steel, Gold Bronzed, Polished Bit

Nos.	**2**	**3**	**4**	**5**
Code	Albuna.	Aldiasen.	Abbomito.	Abbondanza.
Cut Inches,	4½	5	5½	6
Weight Per Dozen, lbs.,	23	30	38	46
Per Dozen,	$11.50	13.00	14.50	16.50

Shingling.

Best Cast Steel, Gold Bronzed, Polished Bit.

Nos.	**1**	**2**	**3**
Code	Abbondoso.	Abbondre.	Abbondoca.
Cut Inches,	3½	3⅞	4⅜
Weight Per Dozen, lbs.,	19	25	28
Per Dozen,	$8.00	8.50	9.00



Claw.

Best Cast Steel, Gold Bronzed, Polished Bit

Nos.	**1**	**2**	**3**
Code	Abbonito.	Abbotar.	Abbondip.
Cut Inches,	3½	3⅞	4⅜
Weight Per Dozen, lbs.,	21	25	30
Per Dozen,	$9.00	9.50	10.00

Half Dozen in a Box.

King's Hatchets.

Broad.

Best Cast Steel, Black Finish, Polished Bit.

Nos.	**2**	**3**	**4**	**5**
Cut Inches.	4½	5	5½	6
Weight Per Dozen, lbs.,	23	30	38	46
Per Dozen.	$11 50	13 00	14 50	16.50

Shingling.

Best Cast Steel, Black Finish, Polished Bit

Nos.	**1**	**2**	**3**
Cut Inches.	3½	3⅞	4⅜
Weight Per Dozen, lbs.,	19	25	28
Per Dozen,	$8 00	8.50	9 00

Claw.

Best Cast Steel, Black Finish, Polished Bit

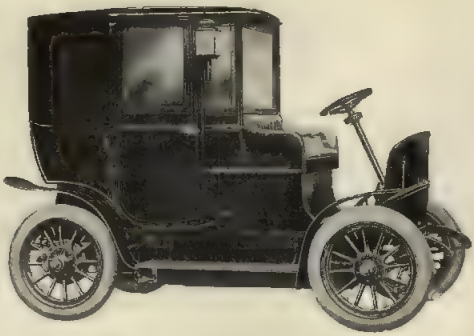
Nos.	**1**	**2**	**3**
Cut Inches.	3½	3⅞	4⅜
Weight Per Dozen, lbs	21	25	30
Per Dozen,	$9 00	9 50	10 00

Half Dozen in a Box

Columbia

Electric Town Carriages

NEW MODELS NOW READY



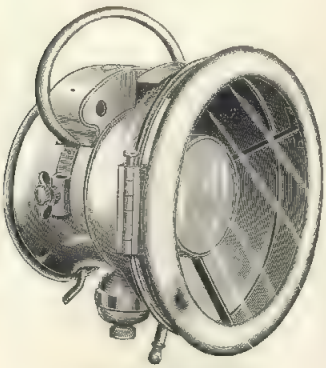
The cut shows the new Columbia Electric
Brougham, Mark LXVIII with Lightened Construction
Pneumatic Tires, 5-Speed Control, Special Exide
Battery and other Improvements
With same Chassis we supply Landaulet, Hansom and Victoria Bodies
Send for Bulletin No. 77

Electric Vehicle Company

HARTFORD, CONN.

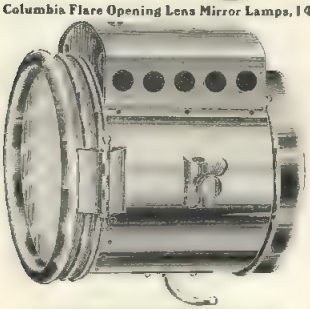
NEW YORK BRANCH 134, 136, 138 West 39th St. CHICAGO BRANCH 1413 Michigan Ave.
BOSTON—Columbia Motor Vehicle Co., 74, 76, 78 Stanhope St.
PHILADELPHIA Pennsylvania Electric Vehicle Co., 250 N. Broad St.
WASHINGTON—Washington E. V. Transportation Co., 15th St. and Ohio Ave.
PARIS S. Bianchi, 194 Boulevard Malesherbes

Member Association of Licensed Automobile Manufacturers



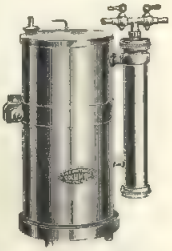
Columbia Parabolens Lamp

Columbia Flare Opening Lens Mirror Lamps, 1 & 2

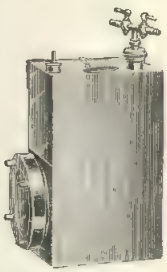


Columbia Straight Barrel Lens Mirror Lamp A-B-C-D

COLUMBIA LAMPS and GENERATORS



Columbia, No 2 Generator
32 oz. Carbide



Columbia, No. 2½ Generator
32 oz. Carbide.

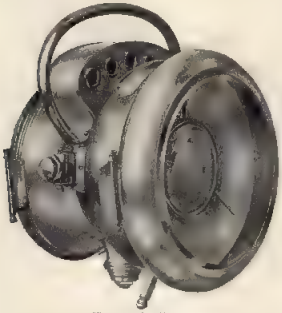
Columbia Lamps are made on honor, and are equipped with genuine Bausch & Lomb lens mirrors, hence their efficiency is guaranteed.

Columbia Generators are simple, efficient, easy to control and operate.

HINE-WATT MFG. CO.,
60 Wabash Ave., CHICAGO, ILL.

"Sunlyte" Accessories

The New York Sporting Goods Co., of 17 Warren St., New York, in connection with a large metropolitan brass factory, will put on the market for 1906 an attractive line of auto specialties, including lamps, horns, spark plugs and novelties. Orders are solicited from manufacturers and jobbers at special quantity prices, and they will be branded as the purchaser requires.



The "Sunlyte" Lamp.

The regular output will be sold under the name "Motor Goods Mfg. Co.," and their lamps are called the "Sunlyte."

The illustration shows the new "Sunlyte" French style lamp, which is made of heavy brass, with silvered reflector and Bausch & Lomb condensing lens. It opens in front and rear, and is focused to throw a very powerful light. This style lists at $15.00, and dealers and jobbers are invited to write for net quotations.

Gray 1906 Muffler

The Gray-Hawley Manufacturing Company, 605-607-609 Fort St., West, Detroit, Mich., are now making deliveries of their 1906 Muffler, which they designate as model 18. The general construction of model 18 is similar to their model 16, which is so well known as to require no further description.

One of the new features is the dome, or collector, placed on the discharge end of the muffler so that the exhaust gases are collected after having passed through the Muffler and discharged through a tube which may be bent so as to turn the gases in any desired direction.

"Gray" Model 18, 1906 Muffler.

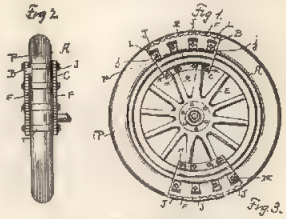
A very simple and efficient cut-out is fitted on the head inside the dome opening direct from the first or inner chamber, and allowing the gases to be collected and discharged through the dome in the same manner as when the cut-out is closed. The cut out lever is easily connected by wire and is self-closing. By using the collector tube the cut-out is equally efficient, but does not make half the noise as when discharged directly into the atmosphere.

As an item of interest it might be stated that the two French mufflers which were found to be the most efficient after a thorough test in Paris are built on the same principle as the Gray Muffler, on which the Gray-Hawley Mfg. Co. control United States patents.

Dentzeau "Non-Skidding Shoe"

Geo. Dentzeau, 161 Grand street, New York, in addition to automobile license pads, etc., is now making a non-skidding tire shoe which is intended to give traction in mud, snow, sand, or on ice.

The shoe consists principally of two metallic shells which are placed against the tire, felloe and a portion of the spokes. These shells are held together at the bottom by bolts and at the top by bands which pass over the tire. The upper or outer portion of each shell has a corrugated surface. This portion of the shell is given the same curvature as the tire, but is of less diameter. This permits the wheel on ordinary roads to travel on the tire alone, as the ordinary compression will not cause the shoe to touch the ground.



Dentzeau "Non-Skidding Shoe."

The bands that hold the shells together at the top and which pass over the tire, in no way injure it as they compress and expand in unison with the tire when going on bumps, etc. These shoes can conveniently be packed away in the car and one or more can easily be clamped on the wheel when required, as no special tools are needed.

The Capitol Foundry Co., Hartford, Conn., have purchased the Standard Foundry Company's iron interest in Parkville, Hartford, and will continue their manufacture of automobile cylinders and high grade castings. Their president and general manager, M. Stickel, who was formerly associated with the Manufacturers' Foundry Co., of Waterbury, Conn., is an authority on automobile foundry work.

COMBINATION BEEF AND BREAD SLICER.

With adjustable knife for cutting bread, dried beef, cold tongue, Saratoga chips, and all vegetables. Used by all the large institutions.

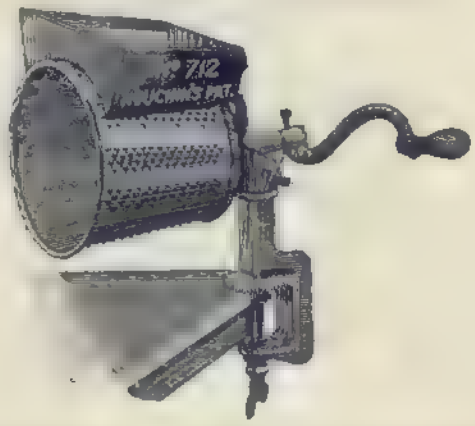
Mfrs. price, per doz. . . . . $48.00 Our net price, each $3.50

HORSE RADISH GRATER.

For grating horse radish, cocoanut, bread, potatoes, chocolate and similar materials Horse radish can be grated at the rate of 1½ minutes to the stalk. Construction simple, wearing parts durable, rapid operation and easily cleaned.

Mfrs. price, each . . . . . $6.00 Our net price, each $5.00

REVOLVING GRATER.



A strong, serviceable grater for family and hotel use, for grating cocoanut, horse radish, pumpkins, squash carrots, also for grating bread, crackers and cheese.

Mfrs. price, per dozen . . . . . $21.00 Our net price each, ... $1.75

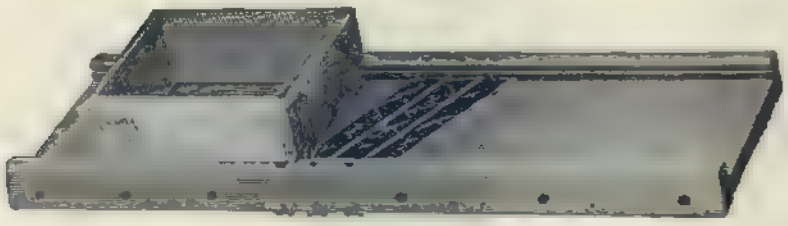
SLAW CUTTERS.

Adjustable Knives.

No. 1	1 Knife	Mfrs. price, per doz., $2.67	Our net price, each, $0.20
No. 2	2 Knives	" " " 5.00	" " " " .35

KRAUT CUTTERS.

Adjustable Knives.



No. 2	2	Knives	with Box,	8x26	Mfrs. price, per doz.,	$16.70	Our net price, each, $1.15
" 3	3	"	"	8x26	" " "	20.00	" " " " 1.35
" 5	3	"	"	9x30	" " "	30.00	" " " " 2.00
" 7	3	"	"	12x36	" " "	54.00	" " " " 3.60
" 8	4	"	"	12x36	" " "	60.00	" " " " 4.00

The adjustment is simple. The bolts are loosened, the knives set at the desired angle and the bolts tightened. No other directions are required. By taking out the bolts the knives may be removed. The knives are of tool steel, painted blue to within a half inch of the cutting edge to prevent rusting.

FAMILY GRINDSTONES.

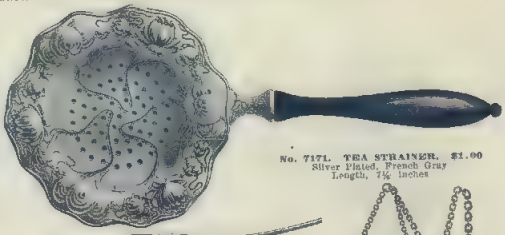
Made from the finest selected stone especially adapted to the numerous articles used in the household, such as knives, scissors, etc. Has cast iron frame, japanned black, and wood base. A very superior and useful article.

Mfrs. price, per doz.,	diameter, 8 in., $15.00	diameter, 9 in., $16.50	diameter, 10 in., $18.75	diameter, 11 in., $22.50
Our net prices, each,	" " 1.00	" " 1.25	" " 1.50	" " 1.75

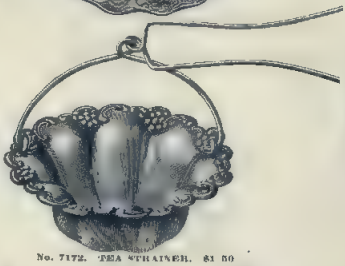
CALL BELLS, TEA BALLS AND STRAINERS.

Illustrations About One-half Size. Prices Each.

No. 7170. TEA BALL. Each, $2 80
Nickel Silver. Full Size.

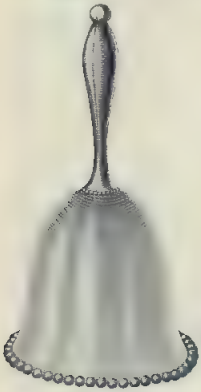


No. 7171. TEA STRAINER. $1.00
Silver Plated, French Gray
Length, 7¾ Inches



No. 7172. TEA STRAINER. $1 50

No. 7173. TEA BALL. $2.12
Nickel Silver. Two-thirds Size.



No. 7174. $2.15
Call Bell.
Nickel Silver, Silver Plated.

No. 7175. $0.64
Call Bell
Silver Plated.

No. 7176. $0.76
Call Bell
Silver Plated

No. 7177 $1.10
Call Bell.
Silver Plated

No. 7180. $2.15
Call Bell.
Nickel Silver, Silver Plated

No. 7178. $1 25
Call Bell Electric
Silver Plated Bell, Black Base

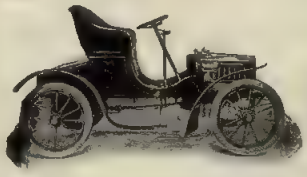
No. 7179. $0.46
Call Bell.
Nickle Plated Bell Bronze Base

No. 7181. $1.72
Call Bell.
Silver Plated Bell
White Marble Base.

No. 7182. $2.70
Call Bell.
Silver Plated.

No. 7183. $1.10
Call Bell.
Silver Plated Bell.
Gold Base.

No. 7184. $1.10
Call Bell
Silver Plated Bell.
Gold Relief Base.



THE COVERT

A POWERFUL RUNABOUT FOR CITY OR COUNTRY

It made many wonderful touring records last season, but we'll surpass them all this season. The 1904 model is a wonder on the roads.

If you want a light and reliable car for a low price the Covert fills the bill.

It has an upright motor, sliding gear transmission, shaft drive. It is easily the most comfortable runabout on the market, for it has a long wheel base and wonderfully easy springs.

Price, f.o.b. Lockport . . $650

Immediate Deliveries Write for Catalog

COVERT MOTOR VEHICLE COMPANY, RICHMOND ST., LOCKPORT, N. Y.

QUEEN

MODEL "E." $1000.00

16 H. P. double cylinder opposed type, automatic oilers, noiseless, powerful and durable. Individual front seats, roomy side entrance tonneau. Unequalled for easy riding qualities. Finish and upholstering equal to the $3000.00 type. Write for beautifully illustrated catalogue describing our various models—every one a queen.

MANUFACTURED BY

The C. H. Blomstrom Motor Co.

DETROIT, MICH.

New York Agent, C. A. Sweet & Co., 58th and Broadway
Chicago Agent, Harry Brunsteller, 1456 Michigan Avenue
Boston Agent, F. E. Wing Motor Car Co., 66 Stanhope St.
Philadelphia Agent, The Motor Shop, 217-219 N. Broad St.
Denver Agent, Motherwell Automobile Co., 1727-29 Curtis St.

The Barrett Automobile JACKS

"Barrett's Patents"

Are the ONLY QUICK-ACTING, RELIABLE and SUBSTANTIAL Jacks on the market for Automobile purposes.

Made in five sizes.

Adapted to any car and to any condition

Easily applied and operated. Require the least energy on the part of the operator.

Adopted by ALL leading manufacturers, dealers and operators.

Beware of Cheap Imitations

Send for "Auto Jack Bulletin"

Made only by

THE DUFF MANF'G CO.

Works, Allegheny, Pa. Pittsburg, Pa

LANE STEAM TOURING CARS

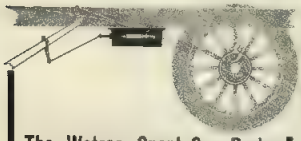
Steel Chassis, full aluminum body, compound engine and condenser. No heat under seats. All functions pertaining to power generation automatic.

A new type of boiler possessing the economy and progressive heating advantages of the flash, but carrying the constant pressure and having reserve of power common to boilers having a water level.

PRICE, $2250. Manufactured by

LANE MOTOR VEHICLE CO.

POUGHKEEPSIE NEW YORK



The Watres Spent Gas Brake

perfectly controls the heaviest car by power from the engine. Adds immeasurably to the safety and comfort of automobiling. In fact, it is indispensable to avoid accident.

The same device blows a whistle louder than any horn and does not disfigure the car.

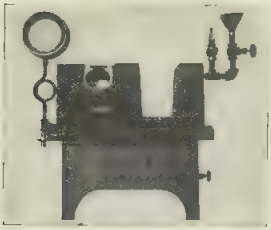
Price complete, $50, including Brake, Whistle and Tire Filler

Send an order, use the outfit for a month and then return it, if it does not far exceed your expectation.

GAS ENGINE WHISTLE COMPANY
1133 Broadway. New York

Write for booklet No. 1 Brake, No. 2 Motor Boat Whistle, No 3 Stationary Engine Whistle

Chicago Representative, William R. Johnston 1336 Michigan Ave



A Steam Vulcanizer that is up to date and one that every repairman needs. Moulds of extra length. 18 in., in sizes from 2½ in. to 6½ in., all makes and styles of tires. Special moulds made to order.

All work guaranteed. Write for circular and discounts.

AUTO-TIRE VULCANIZING CO., Lowell, Mass.
On N. Y., N. H. & H. R. R. Plain St

ECLIPSE SNOW SKATE

CHAS. P. SCHUETZE & CO., Manitowoc, Wis.

Powco

Steel Belt

For Oil-Pump or Fan

Does away with all kinds of trouble caused by leather belts. Won't slip, stretch or break. Belt, pump and fan all work perfectly and don't get out of order.

"LASTS AS LONG AS THE CAR"

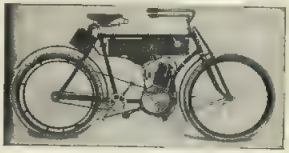
If your AUTO dealer hasn't it, send us the length of your present belt, name of car and $3 and we will send you a POWCO BELT by return mail.

Money back if not satisfactory.

Write for circular E.

Philadelphia Ornamental Wire Co.

628 630 Filbert Street Philadelphia



Crouch Motor Cycle

NEW MODEL B

Tires, 2 inch Dunlop or G & J Goodrich

THE MOST SATISFACTORY MOTOR CYCLE BUILT. Adapted for long distance, long wheel base, automatic float carburetor, single throttle control, 1¼ in. double belt. gasoline and oil 150 miles. Three horse power motor; weight, 180 pounds; new style muffler, with cutout. This machine will run 150 miles without a stop. Write for circulars.

OILED WHILE RUNNING

CROUCH MOTOR CO.
Stoneham, Mass.

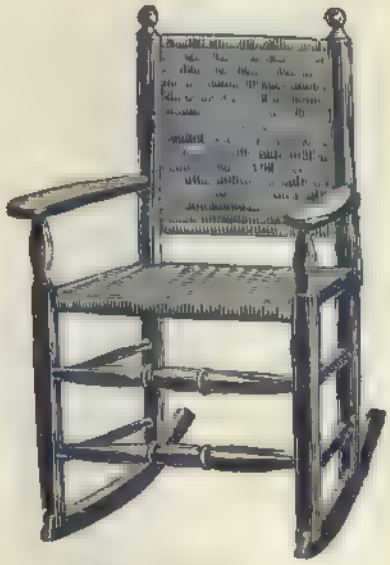
PIAZZA CHAIRS.

No. 1324.

Large Reed Rocker.

The best large rocker made. Daniel Webster pattern.

Mfrs. price . . $4.00 Our net price . $3.75

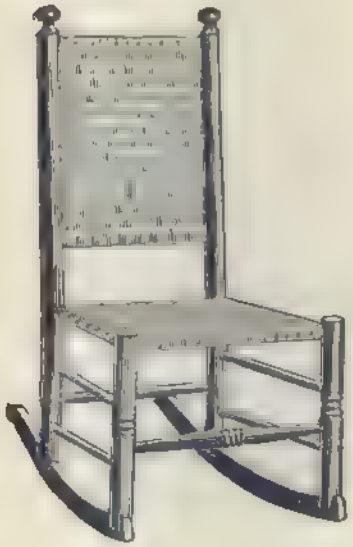


No. 1321.

Medium Reed Rocker.

A companion chair for the No. 1324. Extremely comfortable.

Mfrs. price . . $3.25 Our net price . $3.00



No. 1274.

Small Reed Rocker.

A low down rocking chair for women, also used for a sewing chair.

Mfrs. price . . $2.50 Our net price . $2.25

No. 231.

Steamer Chair.

Most comfortable lounging chair made. Best quality cane seat.

Mfrs. price . . $4.50 Our net price . $4.00

FOLDING LAWN SETTEE.

Our Folding Lawn Settees are nicely made from selected hardwood, and are of the proper shape for comfort. Can be folded into a small compass and packed away for the winter. Painted vermilion.

Best Quality.	Mfrs. price, per doz.	$18.00	Our net price, each . . . $1.25
Good "	" " " " "	15.00	" " " " . . . 1.00

EXTRA HEAVY LAWN SETTEES.

The Extra Heavy Lawn Settee shown above is intended for parks and public grounds where an extra strong settee is required. It has a heavy iron frame, the ends being bolted together with iron rod. Seat and back are made from best quality stock.

4½ ft. long	Mfrs. price, per doz.,	$60.00	Our net price, each, $4.75
5 " "	" "	66.00	" " " 5.00

BOSTON PARK SETTEE.

This style of settee is being adopted by all large cities, it being especially adapted to use in parks and public grounds. The standards are made of steel and each slat is bolted on, in fact it is the most durable settee offered.

Mfrs. price, each . . . . . $9.00 Our net price, each $7.50

OIL CANS.

Crystal Valve.

Globe.

Crystal Valve, glass, 1 gal., packed ½ doz. in crate							Mfrs. price, per doz.,	$7.45
Globe, galvanized, 1 gal., packed ½ doz. in crate							" "	5.00
Polo, " 1 " " ½ "							" "	3.70
Winner, " 1 " " ½ "							" "	3.50

Our net price, ea. h.	$0.45
" "	.25
" "	.25
" "	.20

WOOD OIL CAN CAPS.

Mfrs. price, per 1,000 . . . . . $1.25 Our net price per 1,000 . . . . . $1.00

GALVANIZED GARBAGE CANS.

No. 02.

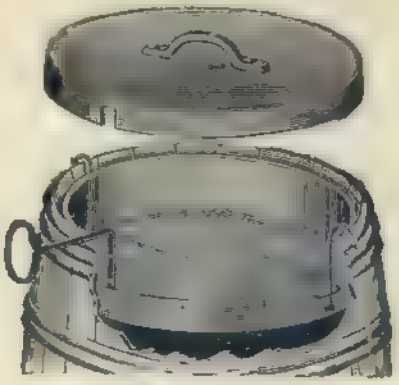
National.

Boston.

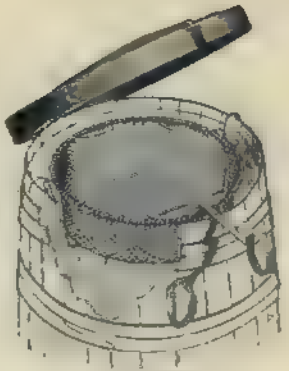
| | | | | | | | |

ASH SIFTERS.

Safety galvanized.



Champion.



All wire.

Safety, galv., with cover,	Mfrs. price, per doz., $12.20	Our net price, each, $1.00
Champion, " "	" " 8.00	" " .50
" without "	" " 7.20	" " .45
All wire, with "	" " 11.00	" " .85
" without "	" " 10.40	" " .80

COMMON ROUND COAL SIEVES.

No. 19. Wire, common round	Mfrs. price, per doz., $2.50	Our net price, each, $0.15
" 18. " " "	" " 3.50	" " .20
" 17. " " "	" " 5.00	" " .25

HUSTLER ASH SIFTER.

COAL HODS.

		Mfrs. price.	Our net price.
15 in., japanned,	per doz.,	$8.25	each, $0.25
16 " "	"	8.75	" .30
17 " "	"	9.50	" .35
18 " "	"	10.00	" .40
15 " galvanized	"	11.50	" .35
16 " "	"	12.50	" .40
17 " "	"	13.50	" .45
18 " "	"	14.50	" .50

GALVANIZED ASH CANS.

		Mfrs. price per doz.	Our net price each
No. 1.	Family size,	$60.00	$4.50
" 2.	Furnace size,	90.00	7.00

Safety.

No. O.

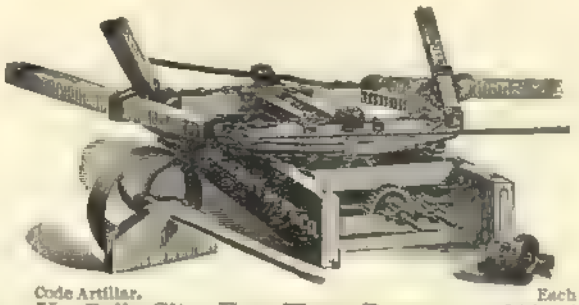
Giant.

Giant, 18 x 26 inches, triple cleats	Mfrs. price, per doz., $54.00	Our net price, each, $2.75
Safety, 18 x 26 " single "	" " 54.00	" " 2.75
We Lead, 18 x 26 " " "	" " 48.00	" " 2.50
No. 1, 18 x 26 " without "	" " 42.00	" " 2.25
" O, 17 x 25 " " "	" " 24.00	" " 1.75

Horse Powers.

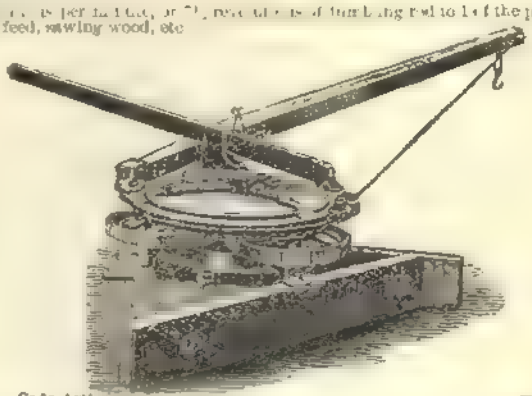
Code Artiqueis. Each
Eureka, One Horse Power, ... $52.50
Weight, 450 lbs. Each.

The Eureka one-horse power is very strong and durable. The tumbling rod is [illegible] per foot, and has a [illegible] It is designed for farmers, for all purposes, such as pumping water, churning, chopping feed, sawing wood, etc.



Code Artillar. Each
No. U –Belle City, Four Horse Power, . $100.00
Weight, 1100 lbs. Each.

The Belle City Four-Horse Power is a double-geared power with great strength, durability and simplicity. It is light enough for two horses and strong enough for four, and is used with all sorts of machinery, such as feed cutters, feed grinders, wood saws, corn shellers, etc. Furnished with two levers and rods, two lead poles, one snap [illegible], one 13-foot tumbling rod, one jack block, one pulley (24-inch diameter by 4[illegible] inch face), and two speeds.



Code Artimpose. Each
No. K Belle City, Two-Horse Power, . $60.00
Weight, 600 lbs. Each.

The Belle City Two-Horse Power is triple-geared and the strongest and easiest running two-horse power made. Furnished with sweep, lead pole, stay rod, 13-foot tumbling rod with slip coupling, jack block and pulley (24-inch by 4 inch face).

BAKER & HAMILTON

Power Drag Saws.

Code Artstico. Each
Culver Power Drag Saw, Complete, ... $119.50
Weight, 1116 lbs. Each.

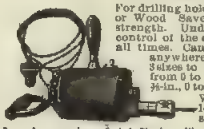
Code Artlee.
Power Attachment for Culver Drag Saw, ... 60.00
Weight, 600 lbs. Each.

Code Artoco.
Jack for Culver Drag Saw, ... 59.50
Weight, 286 lbs. Each.

Code Artomel.
Extension Shaft, for Culver Drag Saw, ... 10.00
Weight, 70 lbs. Each.

The Culver Iron Drag Saw with power is used in the following manner.
After the tree is felled and trimmed, the horse-power is placed near the stump, where it remains stationary. A wrought-iron frame, mounted on wheels, to which the saw [illegible] and [illegible] is moved [illegible] and [illegible] The [illegible] of [illegible] [illegible] [illegible]

"HISEY" Portable Electrical Driven Hand Drill

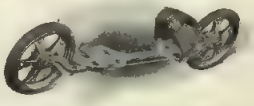


For drilling holes in Metal or Wood. Saves time and strength. Under perfect control of the operator at all times. Can be carried anywhere. Made in 3 sizes to hold drills from 0 to ¼-in., 0 to ½-in. Weights, 12, 14, 19 lbs., respectively

Power from any Lamp Socket, Direct or Alternating Current.

SENT ON TRIAL

THE HISEY-WOLF MACHINE CO.
CINCINNATI, OHIO, U. S. A.



Our Newest Model, One Size Extension. 10 to 12 in.
AUTOMOBILE CYCLE SKATE
Ball-bearings, 5 in. Rubber-Tired Wheels, Metal Parts, Sheet Steel, Nickel Plated. Retail $10.00; with 4 in. Wheel, $7.50 per pair. They appeal to both young and old, being especially adapted for outdoor use as well as in Armories and Rinks. Write for Catalogue. Special discount to the trade.

CYCLE SKATE AND SPORTING GOODS CO.
37 Park Street, New York

Ashton Steam Vehicle Fittings

Highest Grade and Guaranteed Satisfactory. Pop Safety Valves, Cylinder Relief Valves. Specify and use **The Ashton** reliable fittings. Steam and Air Pressure Gauges, Automatic Water Gauges, Gauge Cocks, etc. Write for catalogue.

THE ASHTON VALVE CO.
273 FRANKLIN STREET BOSTON, MASS.
Branches: NEW YORK, CHICAGO ENGLAND: LONDON, E. C., 63 Crutched Friars

Single Compartment Burner with Generator and Regulator

THE FORG GASOLINE BURNERS

are the best and most reliable burners manufactured.
Burners for 14, 16 and 18-inch boilers are single compartment burners.
Burners for 20-inch boilers and larger are made with three compartments with a separate mixing tube for each. Write for catalogue.

PETER FORG Somerville, Mass.
AGENTS
CHAS. E. MILLER, New York A. L. DYKE, St. Louis

AUTOMOBILE AND BICYCLE ENAMEL

WHY WASTE TIME AND BURN MONEY

When our "QUICK BAKING" Black Enamel saves both? It bakes in ONE HOUR and is almost indestructible. It does not soften under heat or lose its lustre, and is guaranteed not to crack or chip off.

BUFFALO ENAMEL & STAIN CO.
SOLE MANUFACTURERS
BUFFALO, N. Y. U. S. A.

DUCKWORTH MOTOR CYCLE CHAINS

are the best

Special Chains to Order Bicycle Chains

DUCKWORTH CHAIN & MFG. CO., SPRINGFIELD, MASS.

Automobile Bargains

GREAT bargains in *NEW* and *SECOND HAND* Automobiles. *WE* are the *LARGEST* dealers of *NEW* and *SECOND HAND* Automobiles in the United States, carrying in stock at all times from one to three hundred machines. Every known make to select from, ranging in price from $100.00 to $5000.00. Complete bargain sheet of machines on hand sent upon request.

TIMES SQUARE AUTOMOBILE CO.
154 WEST 48TH ST., 2 doors East of Broadway
NEW YORK CITY

WEBER PORTABLE TURNTABLE
FOR AUTOMOBILES

PATENTED
Will move the heaviest machines in the most limited space. Works equally well on the two front or two rear wheels. A time and money saver.

The Weber Cycle & Supply Co., 118 S. Tejon St., Colorado Springs, Col.
Eastern Agents:
The Motor Car Equipment Co., 55 Warren St., New York City

Laib Co.
1141
Louisville Ky.

CYCLONE PROSPECTING AND DRILLING MACHINES.

NO. 2; 500 FOOT HOLLOW ROD DRILL.

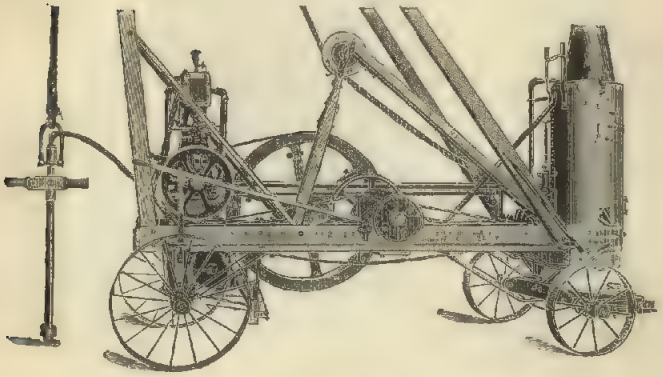


FIG. 3230.

The Cyclone Prospecting Machines are built in various sizes and styles to meet the varying conditions and stratas. They are arranged to be fitted with Hollow Rods for Coal Testing and Mineral Prospecting; also with Cable Tools for drilling wells for water, gas or oil. In writing for catalogue and prices, state your requirements as near as possible, giving maximum depth of holes, strata to be drilled, and what you wish to drill for; this will enable us to quote you prices on suitable machinery and tools for doing your work in the best possible manner. These drills are easily operated, run noiseless and are operated at a fraction of the cost of Diamond or Core Drills; they do not require an expert to get accurate tests of all material passed through; cuttings are all pumped to the surface, showing at all times just what is being drilled.

WIND MILLS, TANKS, ETC.

SUBURBAN OUTFITS.

FIG. [illegible]

STEEL SUBSTRUCTURES.

FIG. 648

TANKS.

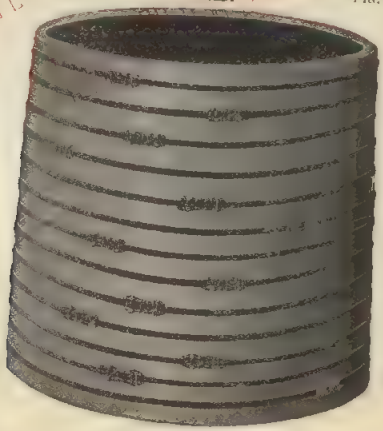


FIG. 649.

Cypress, Pine, Galvanized Iron and Steel. Any sizes to meet requirements. Prices upon application.

CYPRESS TANKS.

RECTANGULAR TANKS.

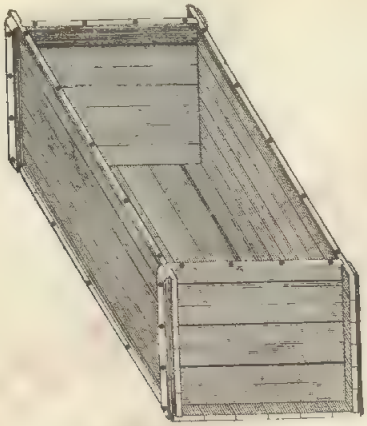


FIG. 650.

These Tanks are made of any required dimensions, with or without partitions, and are thoroughly rodded with both horizontal and perpendicular rods at proper intervals. Prices of these will be quoted upon application.

NOTE.—In asking for prices on Rectangular Tanks, please state whether measurements are inside or outside.

SEVEN REASONS WHY CYPRESS LUMBER IS THE BEST WOOD FOR TANKS.

First—There is no other wood equal to it where exposed to the trying conditions of excessive heat and continual moisture.

Second—It will last for ages without decay.

Third—It is the only wood impervious to acids.

Fourth—It shrinks and swells less than other woods.

Fifth—It warps and twists less than other woods.

Sixth—It has not the knots and defects found in other woods.

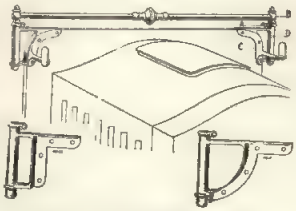
Seventh—When seasoned it is lighter than other woods, assuring cheaper transportation.

It is the Finishing Touches Which Count

THE automobile manufacturer who is able to build a car which pleases the eye of the prospective buyer, accomplishes as much as the arguments of the most fluent salesman. This is one of the many reasons why it is an advantage for you to equip your cars with our **RELIABLE BRASS TRIMMINGS,** which in style, quality and finish are unsurpassed.

OUR LINE COMPRISES

HINGES
HANDLES AND LOCKS FOR SIDE DOORS
LOCKS FOR SMALL DOORS
TAIL GATE HANDLES ETC.

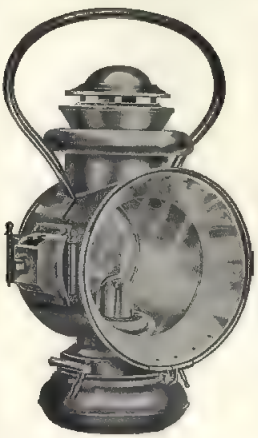


DASH RAILS
DECK RAILS
SEAT HANDLES
WIND SHIELDS
LAMP BRACKETS
CURTAIN FASTENERS ETC.

SEND FOR ILLUSTRATED CATALOG

Let us know your wants, and we will give you quotations. No order too large or small to receive attention.

JOS. N. SMITH & CO., Fourth and Porter Sts., DETROIT, MICH.



The Ham Cold Blast Auto Lamps

represent all that is best in oil burning lamps.

Handsome in appearance
Strongly constructed
Absolutely wind proof
Will not jar out and
Gives by far the most light

Write for our interesting booklet that will tell you all about

The Lamps that Light the Road

C. T. HAM MFG. CO.
ROCHESTER, N. Y.

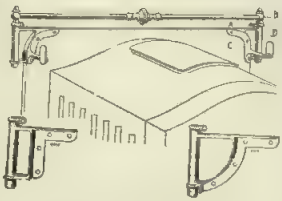
BRASS TRIMMINGS

THE **RELIABLE** MAKE

THEIR STYLE, QUALITY AND FINISH MAKE THEM DESIRABLE FOR EVERY AUTO MANUFACTURER TO USE

OUR PRODUCT COMPRISES

HINGES
HANDLES AND LOCKS FOR SIDE DOORS
LOCKS FOR SMALL DOORS
TAIL GATE HANDLES, ETC.



PART OF OUR PRODUCT IS

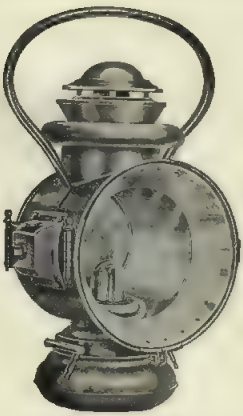
DASH RAILS
DECK RAILS
SEAT HANDLES
WIND SHIELDS
LAMP BRACKETS
CURTAIN FASTENERS
ETC.

WRITE FOR CATALOGUE TO-DAY

Advise Us of Your Requirements and Let Us Quote You

JOS. N. SMITH & CO.

Fourth and Porter Streets DETROIT, MICH.



The Ham Cold Blast Auto Lamps

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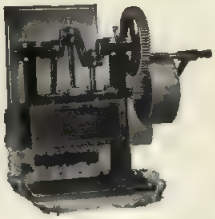
Handsome in appearance
Strongly constructed
Absolutely wind proof
Will not jar out and
Gives by far the most light

Write for our interesting booklet that will tell you all about

The Lamps that Light the Road

C. T. HAM MFG. CO.
ROCHESTER, N. Y.

AIR COMPRESSORS



Belted—Direct Connected
Single and Three Cylinder Styles

Just the thing for public or private garage for inflating tires, cleaning cushions, etc.

Automobile Gear and Sprocket Work

of Every Description

Transmissions, Automobile Machine Parts, Piston Rings, Etc.

Season Contract Work Specially Solicited.
Send us your specifications.

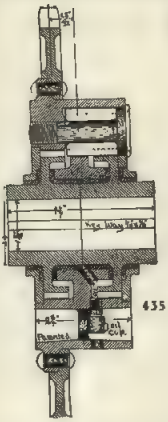
The F. W. Spacke Machine Co., Indianapolis, Ind., U.S.A.

Warner Differentials

"A Mechanical Masterpiece"

Large Variety of Sizes and Styles

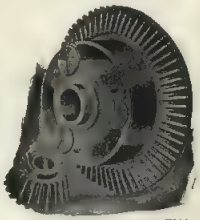
Both SPROCKET and BEVEL DRIVE



We will make any size or ratio of Bevels or Sprockets you want.

Transmissions
Made to Order.

P. J. DASEY
435 Wabash Ave., Chicago
Factory Representative
J. H. NEUSTADT CO.
St. Louis, Mo.
Western Representatives



BEVEL DRIVE DIFFERENTIAL

Warner Gear Co., Muncie, Ind.

WRITE FOR 1906 CATALOG

RELIABLE Brass Trimmings

Reliable Curtain Fasteners Have NO Equal

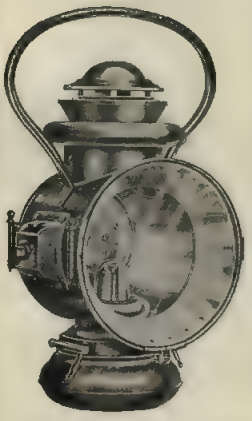
We make all kinds for AUTOMOBILES. We are constantly adding new items and new styles.

It don't matter what you want, write us, if it is not shown in our catalogue. We may have it, if we haven't got it we will make it for you at the lowest consistent price.

Write TO-DAY for catalogue and prices.

4075
Six Styles of Side Door HANDLES

JOS. N. SMITH & CO.
DETROIT, MICHIGAN
Fourth and Porter Streets



MARVELOUS!

It's the exclamation of all when they see our

Cold Blast Auto Lamps

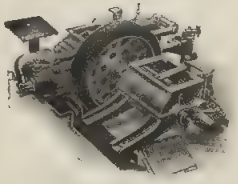
on the road. They give by far the largest light and best satisfaction of any oil Auto Lamps made. **WHY** shouldn't we have the best when we have been manufacturing oil burning lamps for thirty-five years, and the fruit of our entire experience is put into our Auto Lamps.

THAT'S WHY our lamps give the most light, are absolutely wind proof and will not jar out. Have you seen our new idea in a tail lamp?

WRITE FOR COMPLETE BOOKLET

C. T. HAM MFG. CO.
ROCHESTER, N. Y.

BRENNAN
STANDARD

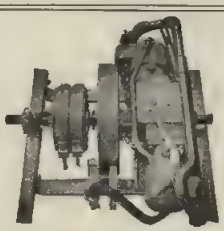


16 H P Specia., with three-speed sliding gear direct in line with motor shaft

If you want to make sure that your 1906 cars have ample power, equip them with the **BRENNAN STANDARD** Motors and Transmissions. We have plenty of proof that they give satisfaction. The following letter is a sample of the many we are constantly receiving.

Staatsburgh, N. Y. July 31, 1905
BRENNAN MOTOR CO.,
Syracuse, N. Y.
Gentlemen:
We are pleased to say that the 14 H. P. Motor which we purchased of your company is working fine.
The car motor was mounted in weighs about 1300 lb. and we have no trouble to go up nearly all hills on high speed, and never use lower than second gear for the very heaviest hills. Always starts prompt and holds the compression remarkably. Have had no occasion to regrind the valves even, and as this is now well advanced in the second season makes it ahead of anything we have seen.
Respectfully yours,
Name given on application.

We make a specialty of Motors for Thomas Model 18, Cadillac, Ford and Oldsmobile.



Standard Horizontal Motor, mounted with Planetary Gear

Brennan Motor Co.
Syracuse, N. Y.

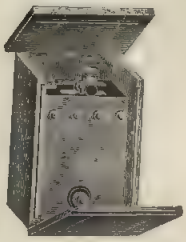
The Coil

is such an important part of an automobile that it must necessarily be reliable and dependable in the highest degree.

SUCH ARE

Dow Coils

CONCEDED TO BE

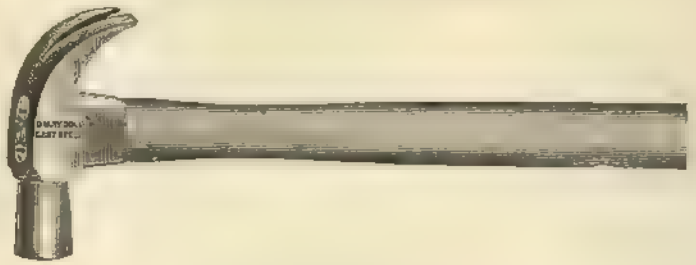


Use them for your 1906 models and do away with ignition troubles.

Dow Portable Electric Co.,
Braintree, Mass.

Nail Hammers

DAVID MAYDOLE HAMMER CO.

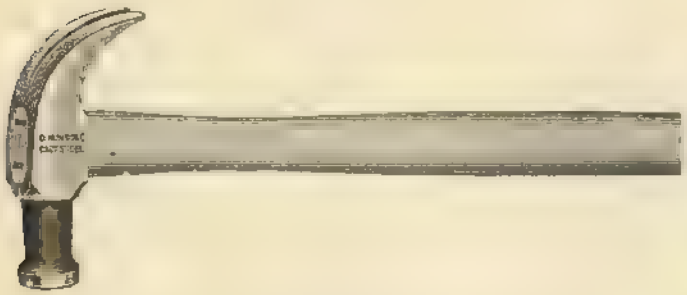


Adze Eye, Plain Face

Solid Crucible Cast Steel, Polished, Hickory Handles

No.	1	1½
Weight, Ounces	20	16
Per Dozen	$8.75	8.00

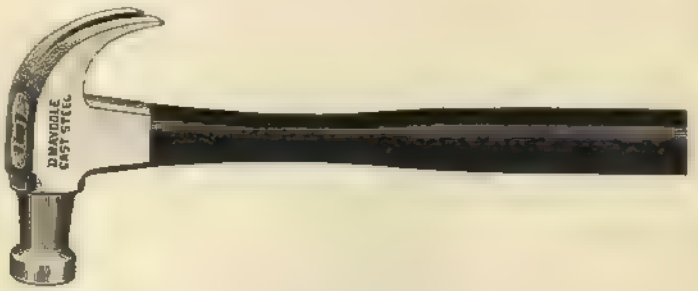
One-Half Dozen in a Box



Adze Eye, Bell Face

Solid Crucible Cast Steel, Polished, Hickory Handles

No.	10	11	11½	12	13
Weight, Ounces.	25	19	16	12	7.
Per Dozen	$11.50	8.75	8.00	7 50	6.75



Adze Eye, Bell Face

Solid Crucible Cast Steel, Nickel Plated, Ebonized Handles

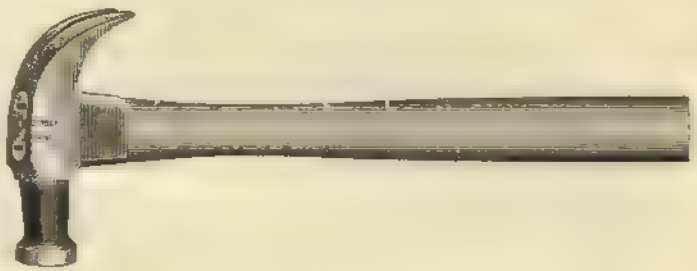
No.	611½
Weight, Ounces	16
Per Dozen	$12 75

One-Half Dozen in a Box

Straight Claw, Adze Eye, Bell Face

Solid Crucible Cast Steel, Polished, Hickory Handles

No	711	711½	712
Weight, Ounces	19	16	12
Per Dozen	$8.75	8.00	7.50



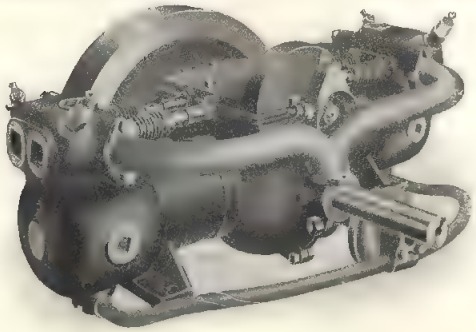
Joiners, Bell Face

Solid Crucible Cast Steel, Polished, Hickory Handles

No.	34
Weight, Ounces	4
Per Dozen	$5.00

One-Half Dozen in a Box

Weights given do not include Handles



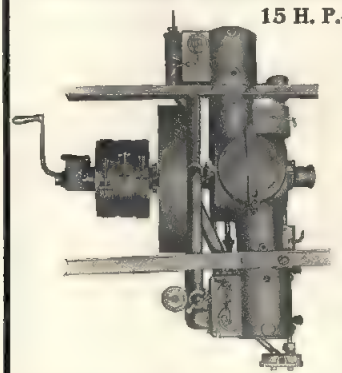
The "DAVIS"

15 H. P. 4½ x 4 two cylinder opposed motor. Total weight including fly-wheel 240 lbs. We can furnish this motor with automatic pump oiler, delivering to each individual bearing, and feeds only when engine runs in direct proportion to speed of motor. We are also building a two-cylinder motor of the same design but with 5" bore by 4½" stroke. This larger engine is 31" over all, with a 125 lb. fly-wheel. Write us for full description and price.

DAVIS MANUFACTURING CO. **Milwaukee, Wis.**

The Westerfield Double Opposed Water Cooled Motors

15 H. P.—20 H. P.



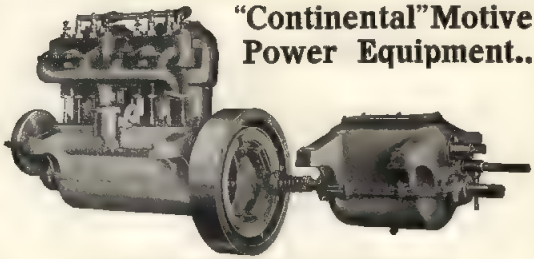
Our motors are the best on the market. They are unequaled for power, simplicity and good wearing qualities and have superior features not found in any other make. Valves are vertical and mechanically operated; bearings are extra large and made of best phosphor bronze and finest nickel babbitt.

Our transmission has all spur gears cut from steel with oil tight case; an internal expanding clutch does away with all end thrust; it has three brake bands, two for speeds and one a brake for car. Motors for Trucks

Timing Device, Gear Pumps, Mufflers

Write us before placing your order.

THE WESTERFIELD MOTOR CO., 1535 Main St., Anderson, Ind.



"Continental" Motive Power Equipment..

"Continental" 4-cylinder Motor, Clutch and Transmission

Early Buying Insures Prompt Deliveries

Our "Continental" Motive Power Equipment is used by many leading builders and has acquired an enviable reputation in the trade for quality, durability, efficiency, etc. Inferior imitations should be avoided. Don't be deceived. Long experience together with up-to-date equipment qualifies us to build a superior machine. Our line for 1908 will be especially attractive. Advise us of your requirements and we will be pleased to quote.

Catalogue upon request.

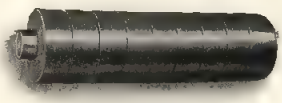
CONTINENTAL MOTOR MFG. CO.

240-44 West Lake St., Chicago, Ill.

PETERSON & DRAPER, Direct Factory Representatives

The 20th Century Muffler

For the Motor Cycle



For the Touring Car

No engine too large

No engine too fast

Pat. applied for

Maintaining the standard of excellence and efficiency of our timers both for two- and four-cycle engines, we now present our

20th Century Pressed Steel Muffler

It is compact, strong, rigid and indestructible with practically no back pressure, eliminating muffler explosions and has no cut out. Our prices and circulars will interest you.

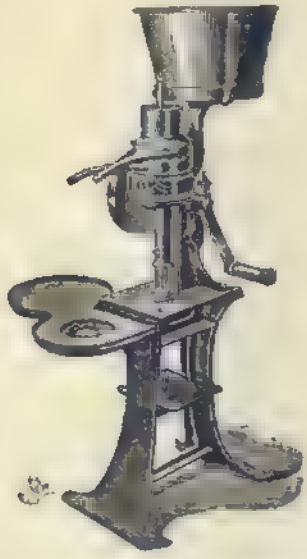
The Powell Mfg. Co., Clinton. N. Y.

DE LAVAL CREAM SEPARATORS.

("Alpha" or "Disc" Bowl Type.)

Crank "Humming Bird."

(New style No. 0.)

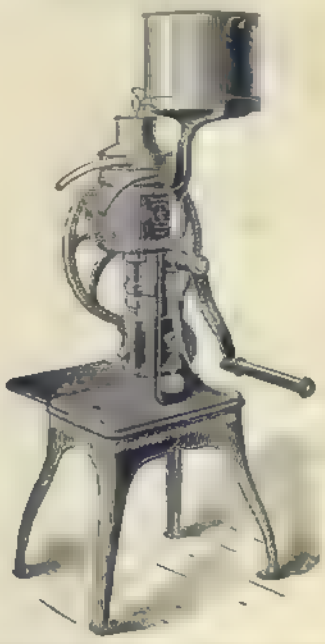


Actual capacity, 250 lbs. per hour.

Our net price $70.00

Improved "Baby" No. 1.

(Iron stool style)

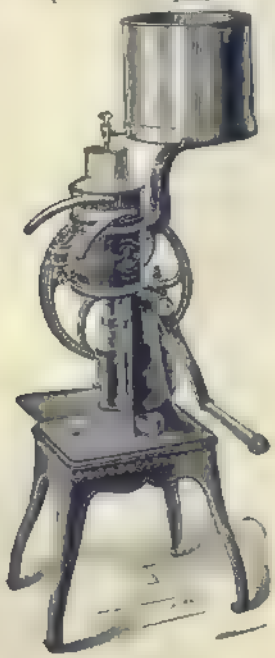


Actual capacity, 450 lbs. per hour.

Our net price $100.00

Improved "Baby" No. 2.

(Iron stool style.)



Actual capacity, 600 lbs. per hour.

Our net price $125.00

Improved "Baby" No. 3.

(High frame style.)

Actual capacity, 1,000 lbs. per hour.

Our net price $200.00

(Not Illustrated.)

"Daisy," actual capacity 350 lbs. per hour (same style as Crank "Humming Bird") . . . . . Our net price, $85.00

Improved Baby No. 2 (high frame style), capacity 600 lbs. . . . . " " 125.00

Improved Dairy Turbine (steam motor style) " 1000 " . . . . . " " 225.00

MELONEY'S AUTOMATIC REGISTERING MILK SCALE

How make the dairy pay? Meloney's Automatic Milk Scale answers the question. It tells what each cow is doing. Accurate and methodical work is necessary for the successful conduct of any modern business. Great improvements have been made in the last twenty years, and the science of dairying has been completely revolutionized. To-day the successful dairyman gets rid of the drones in the dairy, and is making profit, by feeding profitable cows, out of that which was thrown away in the past in feeding worthless cows.

It has been our aim to help the dairy farmer to meet the changed conditions and to provide for him labor-saving appliances that will enable him to profitably furnish a finished product of the highest grade to the consumer.

The advantage of automatically recording the weights of milk from the various cows by simply pushing a button is evident to all.

Descriptive catalogue mailed on application.

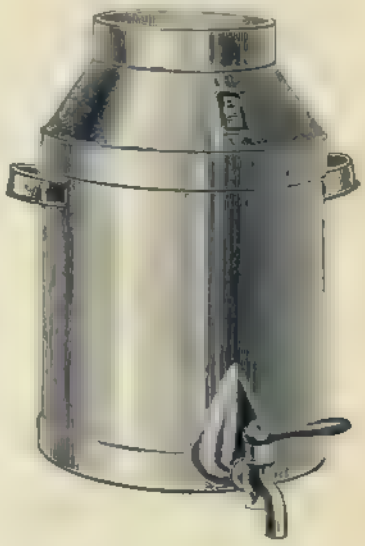
Our net price, including scale mounted in cabinet, one pail, thirty-one sets of record cards, numbered 1 to 20, and pockets for holding record cards $10.00
Additional record cards, per hundred set (200 cards) 50
Per thousand set (2,000 cards) 4.90
When cards are sent by mail, add 12 cents per hundred set to cover postage.

MIXING TANKS

Made from best quality XXXX stock; band at top and bottom and reinforced bottom. Strainer cloth held in position by tin band or hoop. Detachable faucet, size, 1 inch. Prices complete.

6 Can	14 Gallons	Our net price, each,	$6.00
8 "	18 "	" " " "	7.00
10 "	22 "	" " " "	8.00
12 "	26 "	" " " "	9.00

CAUTION—Remove Plug from Faucet in Cold Weather to Prevent Freezing.
Larger Sizes Furnished Promptly. Price on application.



BOSTON PATTERN MILK CANS

Size 8 1-2 Quarts

Size 8½ qts., Grade No. 1, Steel Hoop, made from best quality XXXXX stock. Heavy Steel Hoop at top and bottom. Extra Heavy Bottom and reinforced neck. Especially adapted for railroad use. Size of neck 3¼ in. Marked with Plate or one Letter. Extra Letters three cents each.

Boston Pattern Cans with Tin Stopples . . . Our net price, each, . . . $1.25
For Lock and Key, additional. . . . . " " " " . . .75

CHATTILON'S MILK SCALE

With Adjustable Indicator

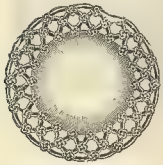
This Circular Spring balance weighs 30 pounds by 1 ounce and is very useful for weighing milk at the barn. It is specially adapted for use in the Babcock Test System as applied to cream gathering. We furnish this scale with the indicator adjustable, so that it may be set back any number of pounds to balance the weight of a pail, and the indicator will stand at 0 when the pail is hung on the balance. This scale is warranted accurate.

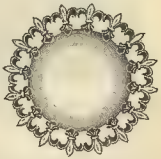
No. 260. M. O., with Adjustable Indicator . . Mfrs. price, $6.50. Our net price, $4.50

No. 5993-105 Case Assortment of Decorated Opal Ware Plates.

All finely decorated with a great variety of flowers and sprays in assorted designs, with rich gold trimmings, to retail at 15c. or to run as a 10c. leader.

1 Gross in Case. We do not break Cases.





Case Assortment No **5993-105** One gross assorted, ALL PLATES ONLY. All finely hand decorated centers, artistic designs, borders tinted and gilded (see illustration above). Seven different styles of the prettiest and best opal plates that has been produced at the price. Diameter, 7½ in.

Total number of pieces complete, 144. **Average cost each, 7¼c.** **Price per gross. $10.50**

SALT SHAKERS.

5991-45 Embossed Opal Shakers. Assorted colors and shapes; assorted plain and fancy embossed decoration; nickel plated metal screw top. Height, 3 in. 1 doz. assorted in box.
Per doz., **$0.45**

CUSPIDORS.

5994-10 Fancy decorated Cuspidors. Assorted two styles of decoration, leaf and rustic designs, some embossed plain, others with gold and silver decorations. Colors Red, green and mottled. Diameter, 7 in.; height, 4¼ in. 3 dozen in a barrel.
Per doz., **$1.80**

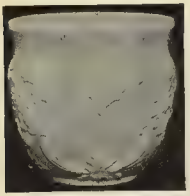
Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Jardiniers.

We do not break case.

5089-42½ Case Assortment of Jardiniers. Glazed inside and outside. Very beautiful design. Embossed scroll work in relief. Handsomely blended colors of dark green, light green and light brown. Height, 8 in.; diam., 8 in. 2 doz. asstd. in case. Per doz., **$4.20**

5093-50 Fancy shaped Jardiniers. Glazed inside and outside, Beautifully blended colors of light brown, dark brown and green in a very pretty effect. Diameter, 10 in.; height, 8 in. 2 dozen assorted in case. Per doz., **$5.00**



5091-60 Case Assortment of Jardiniers. Large and beautiful design. Embossed design all around. Beautiful dark brown and olive green shading. Glazed inside and outside. Diameter, 10 in.; height, 9 in. 1 dozen assorted in case. Per doz., **$6.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DON'T BOTHER

to make your brakes. We are fitted up to do it for you

The Raymond Brake is the best brake that can be made, and is sold at reasonable prices.

The Simplex Brake is sold for a lower price than you can make brakes and is strong and durable.

We also make Brake Bands to your designs.

Remember: We want BRAKE Business!

ROYAL EQUIPMENT CO.

151 HOUSATONIC AVE. BRIDGEPORT, CONN.

THE "CROWN" DELIVERY CAR

MOTOR
2 CYCLE
2 CYLINDER
VERTICAL

WEIGHT
1650 lbs.

CARRYING CAPACITY
1500 lbs.

PRICE
$1150

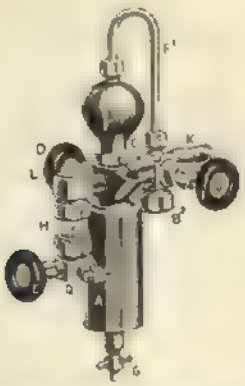
The only Delivery Car on the market driven by a two-cycle motor. It is a model of simplicity has ample power, and no perceptible vibration.

Three months continual work on the road shows every part to be absolutely perfect and wherever demonstrated has given entire satisfaction. The Body made any style to suit purchaser.

Write for full description.

Detroit Auto Vehicle Co. **Detroit, Mich.**

Detroit Lubricators

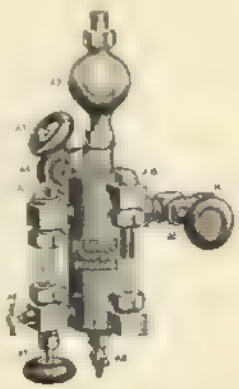


Detroit, Sight Feed, Single Connection

Suitable for Traction Engines, Portable Engines, Steam Pumps, Etc.

An Extra Strong and Durable Lubricator. It can be connected to the Steam pipe either above or below the throttle or into the steam chest direct. It cannot be siphoned out and will not vary in feed whether the engine is working hard or running light. The one-pint and one-quart sizes have a gauge as well as a sight feed glass

	⅓ Pt.	½ Pt.	1 Pt.
Capacity			
Pipe Connections, Inches	½	½	½
Weight, Each, Pounds	9½	10	14¾
Each	$17.00	20 00	28.00



Detroit Improved, Double Connection

The support arm is in two parts; the part containing the globe valve is first screwed into the steam pipe and the Lubricator is then coupled to it. The Lubricator proper can be removed at any time for repairs or otherwise, without letting down steam. The hearing passage from the upper sight feed arm to the support arm passes directly through the body of the Lubricator and, being always filled with steam, it keeps the oil constantly warm and in a thoroughly liquid condition

	⅓ Pt.	½ Pt.	1 Pt.	1 Qt.
Capacity				
Pipe Connections, Inches	½	½	½	½
Weight, Each, Pounds	7¾	9¼	12½	16
Each	$17 00	22 00	30 00	45 00

Oil Syringes

No.		Per Doz.
32B	Highly Polished Brass Finish, will suck oil from a drip pan or from a can; will handle thin or heavy oil; has a double plunger, one set pulls up the oil and the other set forces it out	$12.00

Pumps

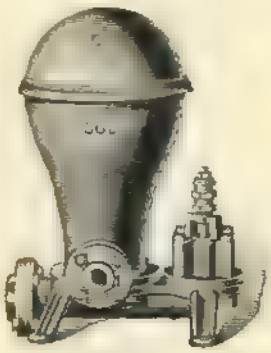
Fig. 200—Cistern Suction
Lift 25 Feet. Closed Top, for Iron or Lead Pipe

No.	2	3	4	5
Diam., Cyl., Inches	2½	2¾	3	3¼
Suction Pipe, Inches	1¼	1¼	1¼	1½
Weight, Each, Pounds	30	32	35	38
Each	$4 50	5.00	5.50	6 50

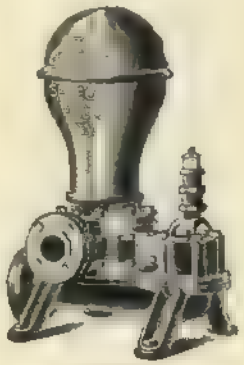
Fig. 205½—Closed Top, Pitcher Spout
For House or Drive Wells, for Iron or Lead Pipe

No.	1	2	3	4
Diam., Cyl., Inches	2½	3	3½	4
Suction Pipe, Inches	1	1¼	1¼	1½
Weight, Each, Pounds	22	23	26	35
Each	$4.25	4.75	5.25	6.25

Hydraulic Rams



No. 345½



No. 346½

Fig.	Size No.	Supply to Operate	Drive Pipe	Discharge Pipe	Weight	Each
345½—	2	2 to 3 gal. per minute	¾ in.	½ in.	28 lbs	$9 00
345½—	3	3 to 4 gal. per minute	1 in.	½ in.	35 lbs	11 00
346½—	4	3 to 7 gal. per minute	1¼ in.	¾ in	45 lbs	14 00
345½—	5	6 to 12 gal. per minute	2 in.	1 in.	90 lbs	22 00
346½—	6	11 to 20 gal. per minute	2½ in.	1¼ in.	158 lbs	45 00

Pump Cylinders

Iron Body, Iron Caps

Diam. and Length, Inches	2½×10½	3¼×10½	4×12
Stroke, Inches	6	6	8
For Pipe, Inches	1¼	1½	2
Well Rod, Inches	⅜	⅜	7/16
Weight Each, Pounds	9	13	22
Each	$4.35	6.00	9.00

Brass Body, Iron Caps

Diam. and Length, Inches	2½×10½	3¼×10½	4×12
Stroke, Inches	6	6	8
For Pipe, Inches	1¼	1½	2
Well Rod, Inches	⅜	⅜	7/16
Weight Each, Pounds	6	13	18
Each	$8.00	9.75	11.25

Laib Co.
578
Louisville Ky.

DIGG'S FIRE EXTINGUISHERS.

UPRIGHT.

FIG. 1566.

AUTOMATIC REVERSIBLE.

FIG. 1567.

Upright and Automatic Fire Extinguishers.

Capacity.....gallons	3	5
Price, Polished Copper.....each	15.00	25.00
Price, Nickel Plated.....each	16.00	26.00

BRACKETS, FOR FIRE EXTINGUISHERS.

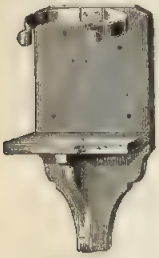


FIG. 1568.

DRY POWDER FIRE EXTINGUISHER.

FIG. 1569.

Price, Brackets to Match Woodwork of Building.....each		1.50

Fire Appliances for Appartment Houses, Office Buildings, Factories, Etc.

FIG. 1570.

FIG. 1571.

FIG. 1572.

Prices on Application.

Laib Co.
574
Louisville Ky

WATER METERS.

WORTHINGTON.

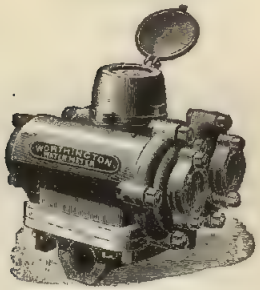


FIG. 1564

Size. ....inches	⅝	¾	1	1½	2	3	4	6
Price....each	19.00	28.00	39.00	45.00	55.00	130.00	375.00	900.00
Price, Couplings.....	.95	1.10	1.50	2.75	3.50	2.00	3.00	5.00
Price, Pot Strainers....each	3.50	3.50	6.00	6.00	7.50	15.00	25.00	.....
Price, Side Strainers..each	.....	.....	.....	15.00	17.00	22.00	25.00	28.00
Greatest Proper Quantity per Minute ..... { Cubic Feet / Gallons }	1¼ / 11¼	3 / 22½	5 / 37½	6 / 45	8 / 60	18 / 135	60 / 450	120 / 900

3, 4 and 6 inch Couplings, Screw Flanges.

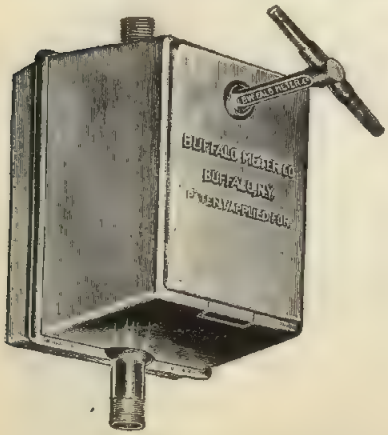


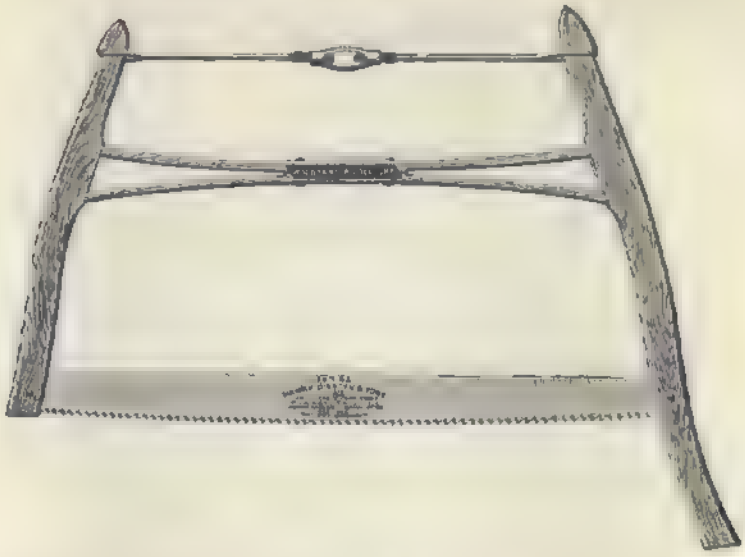
FIG. 1565.

Iron Lock Box.

For inclosing ½ and ⅝ inch American and ½, ⅝ and ¾ inch Niagara Water Meters.

Price ..... each 3.00

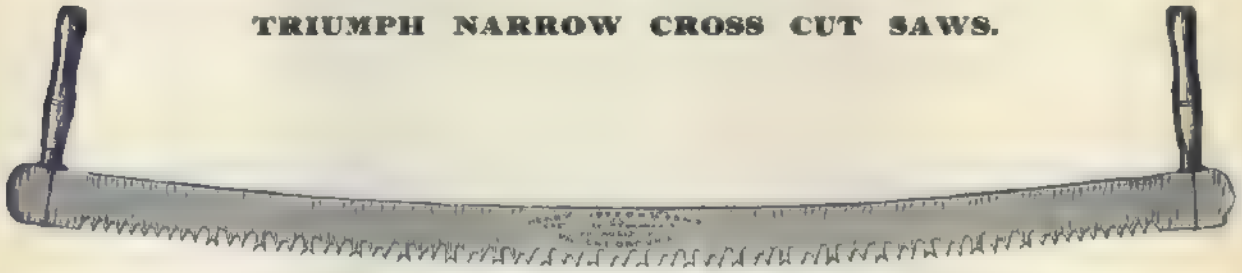
DISSTON'S NO. 111 WOOD SAW.



Complete with Disston No. 11 round breast blade, 28 in. wide. Extra thin back. Selected maple frame. Finest quality.

Mfrs. price, per doz. . . . . $14.00 Our net price, each $1.10

TRIUMPH NARROW CROSS CUT SAWS.

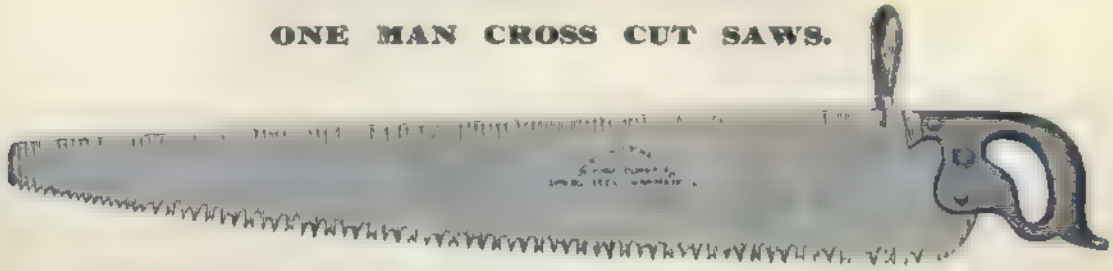


Champion tooth. Without handles.

Mfrs. price	4 ft., $1.44	4½ ft., $1.62	5 ft., $1.80	5½ ft., $1.98	6 ft., $2.16
Our net price	" 1.10	" 1.25	" 1.40	" 1.60	" 1.75

Cross cut saws longer than above, price on application.

ONE MAN CROSS CUT SAWS.



With supplementary handles.

Mfrs. price	3 ft., $2.25	3½ ft., $2.60	4 ft., $3.00	4½ ft., $3.35	
Our net price	" 1.90	" 2.25	" 2.50	" 2.75	

One man cross cut saws longer than above, price on application.

CLIMAX CROSS CUT SAW HANDLES.

The most approved pattern handle for cross cut saws.

Mfrs. price, per pair . . . . . $0.35 Our net price, per pair $0.30

BOYS' SAWS AND BUCKS.

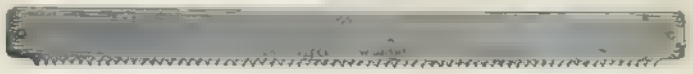
The Boys' Saws and Bucks are not toys, but strong, well made, serviceable articles, suitable for strong, healthy boys. We especially recommend them for youths who are inclined to be indolent. A few weeks earnest work will cure this particular disease. Each set nicely packed in paper box.

Saw and Buck	Mfrs. price, per doz. sets, $12.00.	Our net price, per set, $0.90

WOOD SAW FRAMES.

Common, all white	Mfrs. price, per gross, $14.50	Our net price, each, $0.15
" painted vermilion	" " 20.00	" " .20
No. 6, " " (For No.50 saws)	" " 22.00	" " .25

SAW BLADES.



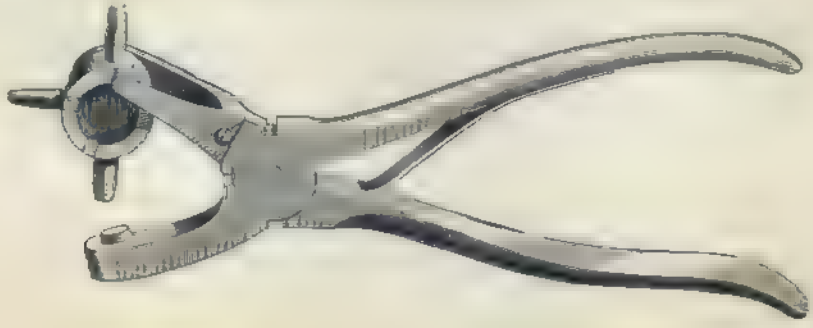
Patent ground and tempered cast steel. Ready for use.

J. Breck & Sons, No. 50, polished	Mfrs. price, per doz., $8.25	Our net price, each, $0.60
" " " 49, blued	" " 8.25	" " .60
Clipper, " 04, bright	" " 4.50	" " .40
Disston No. 6 for " 50 saws, polished	" " 8.25	" " .65
" " 45 " " 45 " blued	" " 8.25	" " .65
" " 15 " " 111 " polished	" " 10.75	" " .75

SAW RODS.

Clipper saw rods, 26 in.	Mfrs. price, per gross, $10.50	Our net price, each $0.15
Patent duplex rods, tinned, 24 in	" " " 18.00	" " .20

FOUR TUBE REVOLVING PUNCHES.



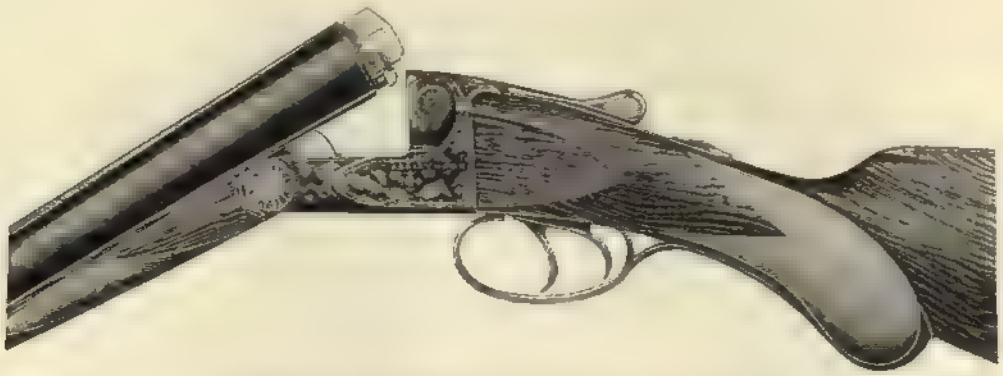
Four tube punches	Mfrs. price, per doz., $16.00	Our net price, each, $1.00

By mail add for postage, 15 cents each.

Fox Double Barrel Shot Guns

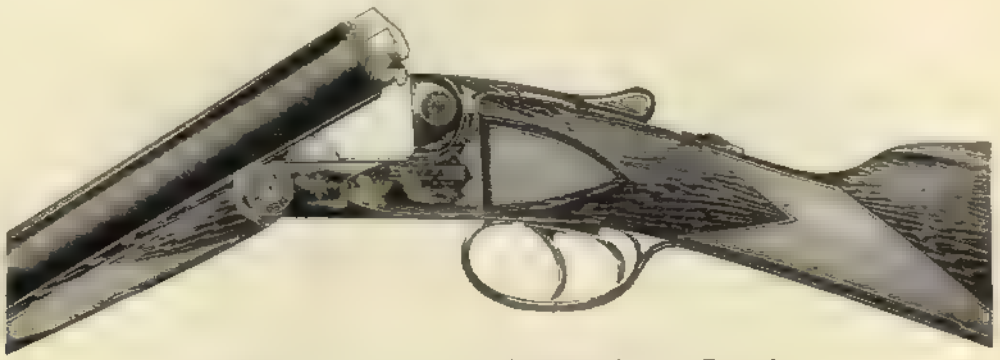
HAMMERLESS.

Fully Guaranteed and Adapted to Smokeless or Black Powders.



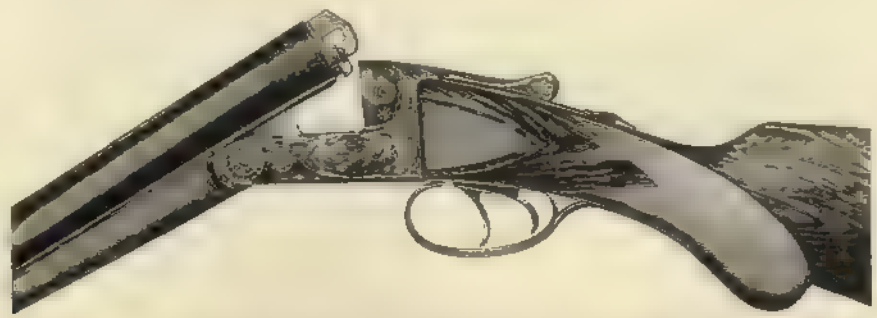
12 Gauge, 30 in. Barrels, We ghts 6¾ to 8 Pounds.

Grade		Each
A	—Genuine Krupp Fluid Steel Barrels, Dark Walnut Stock, Engraved, .	$50.00
AE	—With Automatic **Ejector,** otherwise same as A,	65.00



12 Gauge, 30 in. Barrels, Weights 6¾ to 8 Pounds.

Grade		Each
B	—Genuine Krupp Fluid Steel Barrels, Dark English Walnut Stock, Engraved, .	$75.00
BE	—With Automatic **Ejector,** otherwise same as B, .	90.00

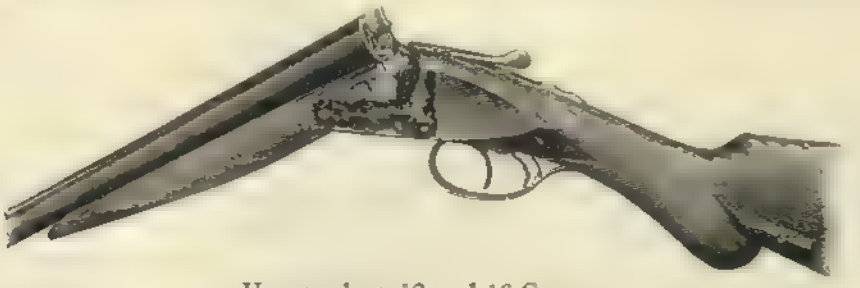


12 Gauge, 30 in. Barrels, Weights 6¾ to 8 Pounds.

Grade		Each
C	High Quality Krupp Fluid Steel Barrels, Selected Dark Curly English Walnut Stock, Artistic Scroll Engraving, . . .	$100.00
CE	—With Automatic **Ejector,** otherwise same as C,	115.00

Remington Double Barrel Shot Guns

Standard Length of Barrels, 10 Gauge 32 in., 12 Gauge 30 in., 16 Gauge 28 in.



Hammerless, 12 and 16 Gauge.

Grade		Each
K	—Blued Steel Barrels, Plain Finish, Walnut Stock,	$30.00
KE	—Automatic **Ejector,** otherwise same as K Grade,	35.00
KED	—Automatic **Ejector,** Damascus Barrel otherwise same as K Grade,	40.00
A	—Two Stripe Damascus Barrels, English Walnut Stock, Pistol Grip,	45.00
AE	—Automatic **Ejector,** otherwise same as A Grade,	50.00
FE	**Trap Grade,** Remington Steel Barrels Blue Finish English Walnut Stock, Straight Checkered Grip and Fore End 12 Gauge only, 30 and 32 in Barrels,	60.00

Hammerless, 12 and 16 Gauge.

Grade		Each
***B**	Three Stripe Damascus Barrels, Selected English Walnut Stock, Checkered Pistol Grip and Fore-End,	$60.00
***BE**	—Automatic **Ejector,** otherwise same as B Grade,	65.00

Hammerless, 10, 12 and 16 Gauge.

Grade		Each
***AO**	Ordinance Steel Barrels, English Walnut Stock Half or Full Pistol Grip Checkered Grip and Fore-End,	$60.00
***AEO**	—Automatic **Ejector,** otherwise same as AO Grade,	65.00
***BO**	—Ordnance Steel Barrels, Selected English Walnut Stock, Half or Full Pistol Grip, Checkered Grip and Fore-End,	75.00
***BEO**	Automatic **Ejector,** otherwise same as BO Grade,	80.00
***C**	Damascus Barrels, Fine English Walnut Stock, Straight, Half or Full Pistol Grip Checkered Grip and Fore-End, Scroll Engraving, Silver Name Plate,	90.00
***CE**	—Automatic **Ejector,** otherwise same as C Grade,	95.00
***CO**	—Ordnance Barrels, otherwise same as C Grade,	90.00
***CEO**	—Automatic **Ejector,** otherwise same as CO Grade,	95.00

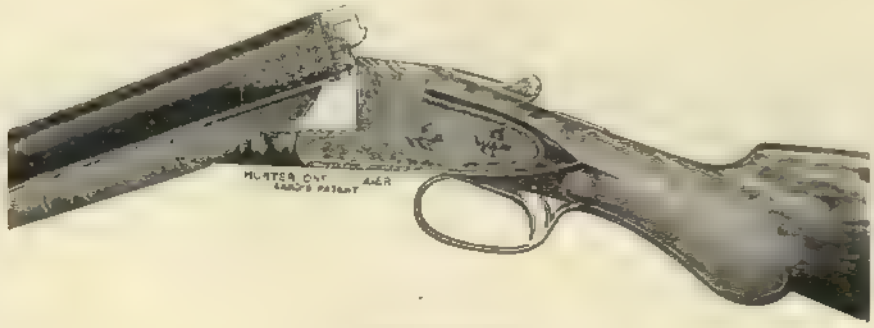
* Made to Order from Factory only

For Extra Parts See Page 1486

L. C. Smith Double Barrel Shot Guns

HAMMERLESS.

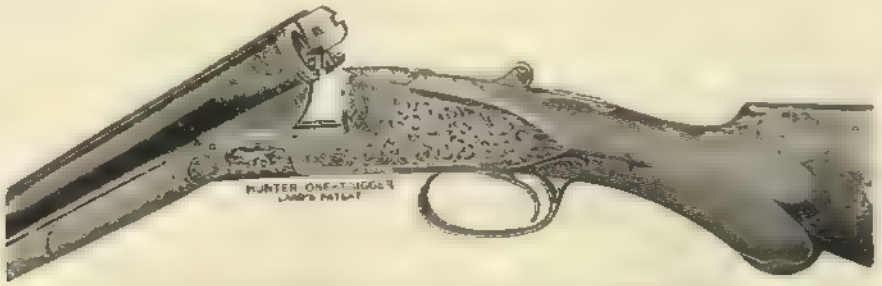
Standard Length of Barrels 12 Gauge 30 in., 16 and 20 Gauge 28 in.



Monogram Ejector

12, 16 and 20 Gauge, Two Trigger.

Grade		Each
*3	Nitro Steel or Damascus Steel Barrels, Carefully Selected English Walnut Stock Straight or Pistol Grip, Nicely Engraved,	$100.00
*3E	–With Automatic Ejector, otherwise same as Grade 3,	115.00
*Pigeon	Pigeon Nitro Steel or High Grade Damascus Barrels, French Walnut Stock Straight or Pistol Grip Handsomely Engraved, Regular or Monte Carlo Stocks,	125.00
*Pigeon Ejector	—With Automatic Ejector, otherwise same as Pigeon,	140.00
*4	No. 4 Nitro Steel or High Grade Chain Damascus Barrels, French or English Walnut Stock Straight or Pistol Grip, Hand Engraving, Regular or Monte Carlo Stock,	150.00
*4E	With Automatic Ejector, otherwise same as Grade 4,	165.00
*5	No. 5 Nitro Steel or Very Fine Damascus Steel Barrels, French or English Walnut Stock Straight or Pistol Grip, Elaborately Engraved,	200.00
*5E	—With Automatic Ejector, otherwise same as Grade 5,	215.00
*Monogram	Finest Damascus or Sir Joseph Whitworth Fluid Compressed Steel Barrels, English French or Circassian Walnut Stock Straight or Pistol Grip Regular or Monte Carlo Stock, Beautifully Engraved,	350.00
*Monogram Ejector	—With Automatic Ejector, otherwise same as Monogram,	365.00



12, 16 and 20 Gauge, Two Trigger, Automatic Ejector only

Grade		Each
*A2	Whitworth Fluid Compressed Steel or Fine Damascus Barrels, French, English or Circassian Stock, Scroll Engraving, Regular or Monte Carlo Stocks,	$390.00
*A3	Whitworth Fluid Compressed Steel Barrels, Best Circassian Walnut Stocks, Hand Made Locks, Elegantly Engraved and Inlaid with Gold, Straight or Pistol Grip, Regular or Monte Carlo Stocks,	740.00

Any Special Features desired may be embodied in this Gun

HUNTER ONE TRIGGER.

Add to any Smith Gun for Hunter One Trigger, ... Each, $25.00

* From Factory only.

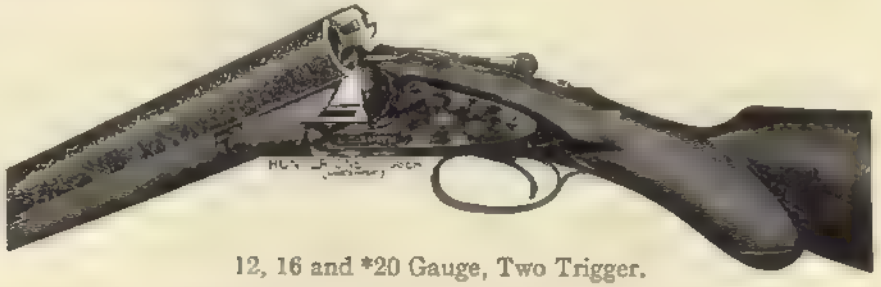
For Extra Parts See Page 1479

L. C. Smith Double Barrel Shot Guns

Standard Length Barrels, 12 Gauge 30 in., 16 and 20 Gauge 28 in.

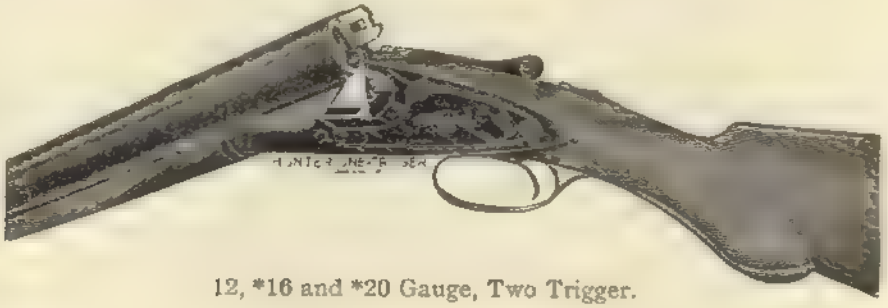
12 and 16 Gauge, Two Trigger

Grade		Each
00	Armor Steel Barrels, English Walnut Stock, Half Pistol Grip,	$37 00
00E—**With Automatic Ejector,** otherwise same as Grade 00,		50.00



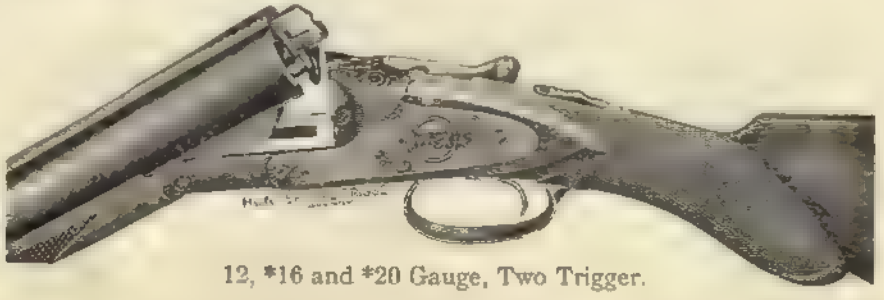
12, 16 and *20 Gauge, Two Trigger.

Grade		Each
0	Good Quality Damascus Barrels, English Walnut Stock, Half Pistol Grip,	$47.00
0E—**With Automatic Ejector,** otherwise same as Grade 0,		60.00



12, *16 and *20 Gauge, Two Trigger.

Grade		Each
1	No. 1 Damascus Barrels, Good English Walnut Stock, Half Pistol Grip	$60.00
1E—**With Automatic Ejector,** otherwise same as Grade 1,		75.00



12, *16 and *20 Gauge, Two Trigger.

Grade		Each
***2**	New Crown Steel or Chain Damascus Barrels Good Quality English Walnut Stock, Straight or Pistol Grip,	$80.00
***2E**	With Automatic **Ejector,** otherwise same as Grade 2,	95 00
2E	**Single Trigger,** Automatic **Ejector,** otherwise same as Grade 2	120 00

* From Factory only.

For Extra Parts See Page 1479.

DOUBLE CLUTCH CAR MOVER.

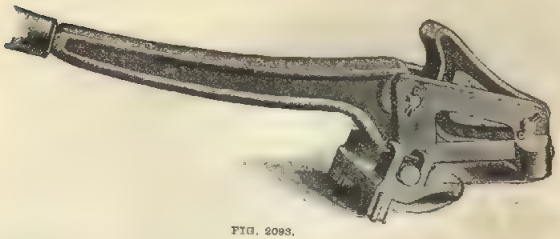


FIG. 2093.

The Double Clutch Car Mover has two features that are entirely new and most practical.

First.—The concave block coming in contact with the outer rim of the wheel, turns it, but does not lift it.

Second. The Double Clutch has V shaped bits which catch the edges of the rail where it is soft. The harder you bear down on the lever the tighter they stick to the rail.

It is made of malleable iron and best tempered steel, and weighs only 18 pounds.

Price, each $5.00

THE FOWLER PATENT PRESSED STEEL CAR REPLACER.

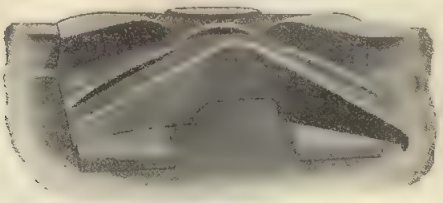


FIG. 2094.

They require no spiking or time to place them in position ready for use.

They are all alike. No "rights" or "lefts" to confuse the user.

They will replace the heaviest cars and locomotives without damage to the trucks.

PRICE PER PAIR.

No. 1 Replacer, for use on 100-lb. rail and heavier $18 00
No. 2 Replacer, for use on 60-lb. to 90-lb. rail 16 00
No. 3 Replacer, for use on 40-lb. rail and lighter 15 00

In ordering, specify size rail on which you wish to use the Replacers.

FAIRBANKS' PORTABLE PLATFORM SCALES.

WITH WHEELS

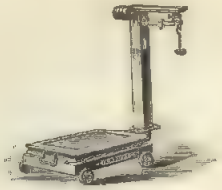


FIG. 2095.

Adapted for the weighing of all kinds of general merchandise. Like all Scales of this manufacture, these are made of the very best materials throughout, with finely tempered steel bearings and pivots where both strength and extreme hardness are required, carefully proportioned iron levers and frame, and hardwood for platform and such parts as require at the same time strength, elasticity and toughness. The beams and sliding poises are of brass, and in the two smaller sizes are marked to 50 lbs. by one quarter pound division; in the larger, to 100 lbs. by one-half pound division; while weights on the counterpoise make up the full capacity.

New No.	Old No.	Capacity, Lbs.	Platform, In.	Price.
1116	7	2,500 x ½	26 x 34	$ 85 00
1118	8	2,000 x ½	25 x 33	75 00
1120	9	1,500 x ½	21 x 28	56 00
1122	10	1,200 x ½	20 x 28	49 00
1124	10½	1,000 x ½	17 x 26	43 00
1126	10¾	800 x ½	17 x 26	38 00
1128	11	600 x ½	16 x 25	33 00
1130	11½	400 x ½	15 x 21	26 00

FAIRBANKS' UNION OR FAMILY SCALES.

Capacity, ½ oz. to 240 lbs. Platform, 10½ x 13½ in.

No. 500. With Tin Scoop, Single Beam ..... Price, $14 00

No. 502. With Brass Scoop, Single Beam ..... Price, 15 00

No. 504. With Tin Scoop, Double Beam ..... Price, 15 00

No. 506. With Brass Scoop, Double Beam 16 00

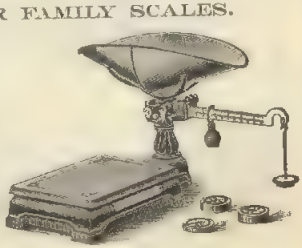


FIG. 2096.

SIMPLEX RADIAL DRILLS.

31 AND 36 INCHES

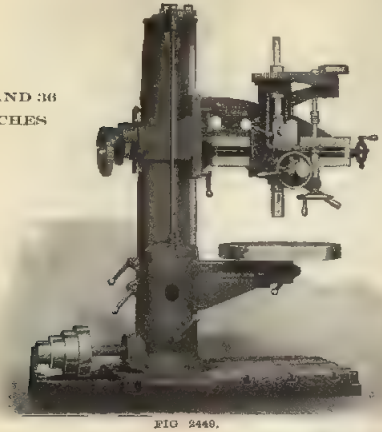


FIG 2449.

The object in designing these Radials has been to meet the demand for machines intended for heavy duty run by untrained labor, and for shops and conditions where complicated and delicate tools are not wanted or desirable. Also to bring the price of a Radial Drill Press within reach of everybody who has to do drilling and tapping.

48 AND 54 INCHES

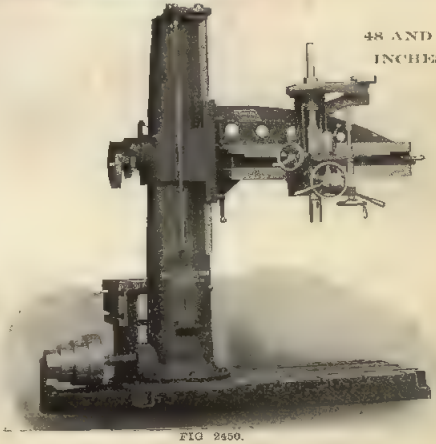


FIG 2450.

The machines lack none of the modern features essential for rapid production, but all the mechanisms are condensed to the simplest form which makes the oiling easy, reduces the wear, tear, and chances for breaking, sticking and getting out of order to a minimum.

Description Page 830.

SIMPLEX RADIAL DRILLS.

The SPINDLE is provided with a QUICK RETURN, AUTOMATIC STOP and DEPTH GAUGE

The FEED is of the semi-geared type; it has FOUR CHANGES, which can be VARIED by shifting the knob on the feed rod WHILE DRILLING.

A SPEED and FEED PLATE goes with every machine

The TAPPING ARRANGEMENT is of our patented, well-known self-adjusting frictional type and embodied in the construction of the head, but not placed directly on the spindle. The operating lever, which also starts, stops and reverses the drill spindle, is always within easy reach of the operator and all changes are made instantly and noiselessly.

The BACK GEARS are of the slipping type and can be pushed in or out within a few seconds.

The COLUMN revolves on a roller bearing of our own design and no pressure is exerted on top of the same when clamped.

The ARM is raised and lowered by power.

The WORKMANSHIP is of the modern standard.

All BEVEL GEARS are PLANED THEORETICALLY CORRECT.

All machines can be furnished with Speed Variator, Motor Drives and any style of table.

DIMENSIONS AND CAPACITY.

	31"	36"	48"	54"
Drills to the center of a circle	63"	73"	97"	109"
Takes between spindle and base	52"	58"	81"	96"
" " " " table	26"	32"	37"	42"
Spindle, traverse of	12"	12"	15"	15"
" least diameter of	1⅝"	1⅝"	1⅞"	1⅞"
" has Morse Taper	No. 4	No. 4	No. 4	No. 5
" feeds .007 to .016	4	4	4	4
" speeds { 31" & 36" 16 to 390 rev. / 48" & 54" 14 to 245 rev. }	8	8	8	8
Least distance between column and spindle.	10"	10"	14"	14"
Traverse of head on arm	21"	26"	35"	41"
" of arm on column	32"	38"	36"	43"
Size of table	25 dia.	25 dia.	20" sq.	20" sq.
Total height of machine	85"	94"	8' 1"	9'
Floor space required	6'x8'	6½'x9'	8'4"x10'	8½'x11'
Cone pulley, largest diameter of	11"	11"	13"	13"
" " width of belt	2½"	2⅝"	3"	3"
Countershaft, revolutions of	300	300	275	275
" pulleys, diameter of	12"	12"	14"	14"
" width of belt	3½"	3½"	4"	4"
Capacity, pipe tap	2"	2"	2½"	2½"
" standard tap	1¼"	1¼"	1½"	1½"
" drill in solid cast iron	2½"	2½"	2⅝"	3"
" " " " steel	1¾"	1¾"	2"	2¼"
Weight, net, about	3000 lbs.	3250 lbs.	5300 lbs.	5700 lbs.

DRESSED DOLLS—Continued.

We do not Break Packages.

3245-22½ 3246-22½

3245-22½ Dressed Doll. Movable arms and legs, large bisque head, long flowing Rembrandt hair, glass eyes, composition hands, real shoes and stockings, colored Swiss dress trimmed with lace, lace trimmed revers, colored bonnet to match dress. Height, 17 in. Each in a box. ½ dozen assorted in pkg.

Per doz., $2.25

3246-22½ Dressed Doll. Movable arms and legs, bisque head with glass eyes and long Rembrandt hair, fancy striped Swiss dress trimmed with lace edging and ruffle on bottom, large ruffled collar trimmed with lace, bonnet to match dress, shoes and stockings. Height, 17½ in. Each in box. ½ dozen assorted in pkg.

Per doz., $2.25

3247-22½ 3248-22½

3247-22½ Dressed Doll. Figured sateen dress with large lace yoke, movable bisque head, curly hair, glass eyes, movable arms and legs, real shoes and stockings, lace trimmed hat. Height, 12½ in. Each in a box. ½ dozen in pkg.

Per doz., $2.25

3248-22½ Dressed Doll. Movable arms and legs, long curly hair, movable bisque head, glass eyes, figured sateen dress with large lace yoke, braid trimming at bottom, large bonnet trimmed with lace, shoes and stockings. Height, 15 in. Each in a box. ½ dozen assorted in pkg

Per doz., $2.25

3250-20 3255-20

3250-20 Dressed Doll. Movable bisque head, long Rembrandt hair, glass eyes, movable arms and legs, figured cotton dress with puffed waist and lace trimmed collar, large size hat to match dress, real shoes and stockings. Height, 13½ in. Each in a box. ½ dozen as sorted in pkg.

Per doz., $2.00

3255-20 Admiral Doll. Black flannel uniform trimmed with gilt buttons and metal epaulettes, red, white and blue belt with gilt buckle, movable bisque head, with curly hair and glass eyes, paper mache movable arms and legs. Height, 9 in ½ dozen in box.

Per doz., $2.00

3256-20 3957-20

3256-20 Dressed Doll. Heavy flannel dress trimmed with wool, movable bisque head, glass eyes and Rembrandt hair, paper mache limbs, painted shoes and stockings, wool hats to match dress. Height, 9½ in. ½ dozen assorted in box

Per doz., $2.00

3957-20 Assorted Indian men and women dressed in colored wool dresses, Indian style; movable paper mache hands and feet, movable bisque head with long black hair. Height, 9 in. ½ dozen assorted in box

Per doz., $2.00

3258-20 3259-20

3258-20 Clown Doll. Dressed in bright colors; new style of jointed arms, elbows, wrists, hips and knees; doll can perform many tricks, as standing on hands, etc.; bisque head with curly hair, painted eyes, ruffled collar, assorted colored percale dresses trimmed with gold braid. Height, 8¼ in. ½ dozen assorted in box

Per doz., $2.00

3259-20 Assorted Indian Boys and Girls. Flannel dresses, Indian style; movable paper mache arms and legs, turning bisque head, long black hair, glass eyes Height, 9½ in. ½ dozen assorted in box.

Per doz., $2.00

3260-20 3261-20

3260-20 Dressed Doll. Movable bisque head, Rembrandt hair, glass eyes, movable paper mache arms and legs, percale skirt, white blouse waist, collar trimmed with lace edging, large hat to match dress. Height, 13 in. Each in a box. ½ dozen assorted in pkg

Per doz., $2.00

3261-20 Dressed Doll. Fine quality white accordian pleated Swiss dresses with lace trimming at bottom, large lace collar, movable bisque head, long Rembrandt hair and glass eyes, movable paper mache hands and feet, painted shoes and stockings, gilt necklace and metal charm. Height, 10 in. ½ dozen in box.

Per doz., $2.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED DOLLS—Continued.

We do not Break Packages.

3262-20

3263-22½

3262-20 Dressed Doll. Turning bisque head, curly hair, glass eyes, movable arms and legs, paper mache arms, mercerized cotton dress with large collar trimmed with braid, large bonnet trimmed to match dress, shoes and stockings. Height, 13 in. Each in a box. ½ dozen assorted in pkg.
Per doz., $2.00

3263-22½ Dressed Doll. Movable bisque head, long Rembrandt hair, glass eyes, paper mache arms, movable limbs, shoes and stockings, cotton serge dress with pleated waist and lace trimmed revers, large lace trimmed hat to match dress. Height, 14½ in. Each in a box. ½ dozen assorted in pkg.
Per doz., $2.25

3264-22½

3265-22½

3264-22½ Dressed Doll. Turning bisque head, Rembrandt hair, glass eyes, white voille dress with lace yoke, white Swiss hat, shoes and stockings. Height, 13 in. Each in a box. ½ dozen in pkg.
Per doz., $2.25

3265-22½ Dressed Doll. Turning bisque head, Rembrandt hair and glass eyes, percale dress with lace revers and lace yoke, large bonnet to match dress, paper mache hands, movable limbs, real shoes and stockings. Height, 13½ in. Each in a box. ½ dozen assorted in pkg.
Per doz., $2.25

3266-22½

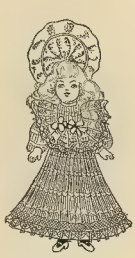
3266-22½ Dressed Doll. Movable bisque head, glass eyes, Rembrandt hair, paper mache movable hands and feet, painted shoes and stockings, fancy carnival dress with lace yoke, trimmed with bows to match dress. Height, 10 in. ½ dozen assorted in box.
Per doz., $2.25

3267-22½ 3268-22½

3267-22½ Sailor Boys and Girls. Turning bisque head, long Rembrandt hair, glass eyes, paper mache movable limbs, painted shoes and stockings, dressed in sailor costume made of blue and white pique. Height, 9½ in. ½ dozen assorted in pkg.
Per doz., $2.25

3268-22½ "Buster Brown" Boys and Girls. Turning bisque head, Rembrandt hair, glass eyes, movable paper mache arms and legs, dressed in Buster Brown dresses made of linen with lace collar, white celluloid belt, lace trimmed hat to match dress. Height, 8½ in. ½ dozen assorted in box.
Per doz., $2.25

3269-22½ Winter Girls Colored flannel dress with white and black flounce, also white and black cape, muff and boa, bisque head with long curly hair, glass eyes, movable paper mache arms and legs, painted shoes and stockings. Height, 9½ in. ½ dozen assorted in box.
Per doz., $2.25



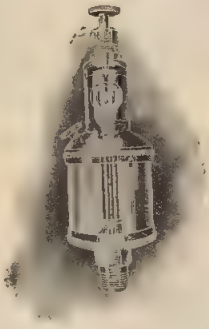
3270-22½ Dressed Doll. Turning bisque head, glass eyes and Rembrandt hair, movable paper mache hands and feet, striped tarletan dress with lace edging around bottom, collar trimmed with lace edging and ribbon bows, hat trimmed with bows to match dress, painted shoes and stockings. Height, 10 in. ½ dozen assorted in box.
Per doz., $2.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

2 H. P. $75.00
4 H. P. 100.00

The Du Brie Motor Co.
34 BRUSH ST., Detroit, Mich.

The Buffalo Pressure Feed Cylinder Oiler
Fig. 50



Patent applied for
SHERWOOD MFG. CO., BUFFALO, N. Y.
Write for prices

Any Unprejudiced Judge

will tell you that the Jones Speedometer has the only practical principle which permits of both **initial** and **permanent** accuracy.

Our Speedometer Protection Tag warns the over-ambitious mounted officer not to arrest on guess work. This is free.

Our Speedometer Bulletin contains notes and articles of interest to every driver of a motor car. Copy sent free, if you will write.

JONES SPEEDOMETER
124 W. 32d St., New York

TRADE SPEEDOMETER MARK

AUTOMOBILE STOLEN
This headline appears frequently in the newspapers

"The Auto-Lock-Plug"
makes theft impossible.
When you hold the key, the car remains in the garage.

Above cut shows "THE AUTO-LOCK PLUG" mounted on a Splitdorf switch.

Takes the place of the commonplace cut-out plug. Operates by Yale Lock and Key. Three keys with each lock. Each lock requires a different key. Dust proof, grease proof and theft proof.

Simply Perfect Perfectly Simple

Lock plugs to fit any form of **Splitdorf switch** or coil ready for immediate delivery. Lock plugs for other switches and coils made to order in quantities. **Price, $5.00.**

AUTO-LOCK-PLUG CO.
31 NASSAU STREET NEW YORK CITY

Laib Co.
316
Louisville Ky.

COUNTERS.

FOR LINEAL MEASURE.

WITH LEVER

FIG. 873.

FIG. 874.

Number.....	1	1	1	1	1
	With Lever.	With Lock Guard.	For Lineal Measure.	Linometer, Linotype Attachment.	Linometer, Linotype Attachment, Lock Guard.
Number of Dials....	4	4	4	4	4
Register.....	10,000	10,000	10,000	10,000	10,000
Price.....each	8.00	10.00	18.00	9.50	11.50

Number.....	2	2	2	2	2
	With Lever.	With Lock Guard.	With Alarm Set at Each Number.	With Alarm Set at 100.	For Lineal Measure.
Number of Dials....	5	5	5	5	5
Register. . ..	100,000	100,000	100,000	100,000	100,000
Price.....each	10.00	12.00	15.00	15.00	20.00

HAND COUNTERS.

FIG. 875.

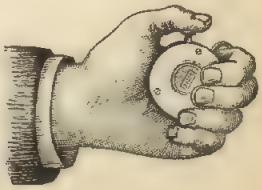


FIG. 876.

Price..... 3.00

Laib Co.
317
Louisville Ky

SPEED INDICATORS.

STARRETT HIGH SPEED.

FIG. 877.

STARRETT IMPROVED.

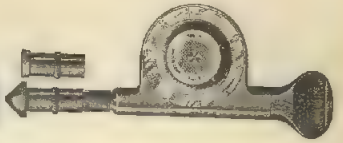


FIG. 878.

Price, High Speed	each	1.00
Price, High Speed, in Leatherette Case	each	1.50
Price, High Speed with 7½ inch Spindle, Extra	each	.50
Price Improved	each	1.50
Price, Improved, in Leatherette Case	each	2.00

STARRETT REGISTERING.

FIG. 879.

SINGLE SPEED.

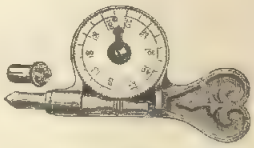


FIG. 880.

Price, Registering	each	3.00
Price, Registering, in Leatherette Case	each	3.50
Price, Single Speed, with Plain Cap	per dozen	10.00
Price, Single Speed, with Split Cap	per dozen	11.00

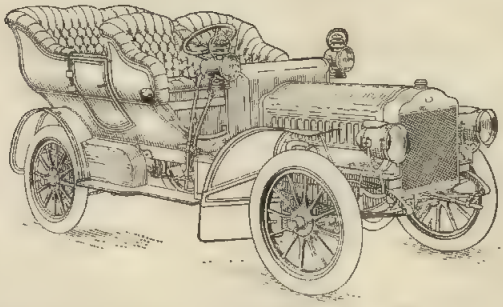
RIGHT AND LEFT REGISTER, IMPROVED, DOUBLE DIAL.

FIG. 881.

LIGHTNING.

FIG. 882.

Price, Right and Left Register	each	1.50
Price, Lightning	each	2.00
Price, Lightning, in Leatherette Case	each	2.50



TANNER & CO.

AUTOMOBILES, MOTOR CYCLES, BICYCLES AND SEWING MACHINES

NEW BEDFORD, MASS., September 2nd, 1905.

E. R. Thomas Motor Co.,
Buffalo, New York.

Gentlemen:

Last October I purchased a 24 horse power Thomas Flyer from a Boston owner, who told me that it had been driven 10,000 miles during 1904. Since owning this car, I have covered 21,000 miles in it personally, getting over $1700.00 from renting the same, and the machine seems smoother running to-day than ever.

I have carried six and seven people in it many times, on trips forty and fifty miles. Better service could not be asked or given.

Yours very truly,
WM. E. TANNER.

Commonwealth of Mass.
New Bedford.

Bristolss.

Personally appeared the said William E. Tanner and made oath that the above statement is true. Sworn to before me this 2nd day of September, 1905. SEAL

CHARLES T. HERON, *Justice of the Peace.*

E. R. Thomas Motor Co.

Makes Thomas Flyer Automobiles

1217 NIAGARA ST., BUFFALO, N. Y.

Members A. L. A. M.

TIPPED

Tea Spoons.

7569 A1 $3 83
7570 XII 4 50
7571 Triple 5 40

Dessert Spoons.

7572 A1 $0 75
7573 XII 7 65
7574 Triple 9 90

Table Spoons.

7575 A1 $ 7 65
7576 XII 9 90
7577 Triple 10 80

Dessert Forks.

7778 A1 $6 75
7779 XII 7 65
7780 Triple 9 90

Medium Forks.

7581 A1 $ 7 65
7582 XII 9 90
7583 Triple 10 80

Twist Butters.

7584 A1 . . . . $9 90

Sugar Shells.

7585 A1..... $7 20

Ladles.

7586 A1 Cream $ 9 45
7587 A1 Gravy. 13 50
7588 A1 Oyster 22 70
7589 A1 Medium 27 90
7590 A1 Soup .. 40.50

Knives.

A1 Pie not made
A1 Cake not made

Spoons.

A1 Coffee not made
A1 Orange not made
A1 Berry not made
A1 Berry gilt not made.

SEVILLE

Tea Spoons.

7591 A1 . $4 28
7592 XII 4 95
7593 Triple 5 85

Dessert Spoons.

7594 A1 $7 65
7595 XII 8 55
7596 Triple 9 90

Table Spoons.

7597 A1 ..... $ 8 55
7598 XII..... 9 90
7599 Triple. . . 11 70

Dessert Forks

7600 A1 $7 65
7601 XII 8 55
7602 Triple 9 90

Medium Forks.

7603 A1 $ 8 55
7604 XII 9 90
7605 Triple 11 70

Twist Butters.

7606 A1..... $9 45

Sugar Shells.

7607 A1..... $8 10

Ladles

7608 A1 Cream $12 15
7609 A1 Gravy 16 20
7610 A1 Oyster 25 10
7311 A1 Medium 43 20
7612 A1 Soup. 45 90

Knives.

A1 Pie not made
A1 Cake not made

Spoons.

7613 A1 Coffee $ 4 23
7614 A1 Orange. 5 40
7615 A1 Berry 21 60
7616 A1 " gilt. 29.70

YORK.

Tea Spoons.

7617 A1.. $4 28
7618 XII .. 4 95
7619 Triple 5 85

Dessert Spoons.

7620 A1 $7 65
7621 XII 8 55
7622 Triple 9 90

Table Spoons.

7623 A1 $ 8 55
7624 XII 9 90
7625 Triple 11 70

Dessert Forks.

7627 A1 $7 65
7628 XII 8 55
7629 Triple 9 90

Medium Forks.

7630 A1 $ 8 55
7631 XII 9 90
7632 Triple 11 70

Twist Butters.

7633 A1. ..... $9.45

Sugar Shells.

7634 A1..... $8 10

Ladles.

7635 A1 Cream $12 15
7636 A1 Gravy. 16.20
7637 A1 Oyster 25 10
7638 A1 Medium 43 20
7639 A1 Soup 45 90

Knives.

A1 Pie not made
A1 Cake not made

Spoons.

7640 A1 Coffee $ 4.23
7641 A1 Orange $.40
7642 A1 Berry 21 60
7643 A1 " gilt 29 70

BERWICK

French Gray Finish only

Tea Spoons.

7644 A1 ..... $4 28
7645 XII 4 95
7646 Triple 5 85

Dessert Spoons.

7647 A1 $ 7 65
7648 XII. 8 55
7649 Triple 9 90

Table Spoons

7650 A1 $ 8 55
7651 XII 9 90
7652 Triple 11 70

Dessert Forks.

7653 A1 .. ....$ 7 65
7654 XII 8 55
7655 Triple 9 90

Medium Forks.

7656 A1 $ 8 55
7657 XII 9 90
7658 Triple 11 70

Twist Butters.

7659 A1.....$ 9.45

Sugar Shells.

7660 A1 ..... $ 8.10

Ladles.

7661 A1 Cream $12 15
7662 A1 Gravy 16 20
7663 A1 Oyster 25 10
7664 A1 Medium 43 20
7665 A1 Soup .. 45 90

Knives.

7666 A1 Pie $27 00
7667 A1 Cake 21 60

Spoons

7668 A1 Coffee $ 4 23
7669 A1 Orange. 5.40
7670 A1 Berry.. 21 60
7671 A1 " gilt 29 70

YALE.

Tea Spoons.

7672 A1 $ 4 28
7673 XII 4 85
7674 Triple 5 85

Dessert Spoons.

7675 A1 . $ 7 65
7676 XII 8 55
7677 Triple 9 90

Table Spoons.

7678 A1.....$ 8 55
7679 XII..... 9.90
7680 Triple 11 70

Dessert Forks.

7681 A1 .....$ 7 65
7682 XII..... 8.55
7683 Triple 9 90

Medium Forks.

7684 A1 .....$ 8 55
7685 XII 9 90
7686 Triple . 11 70

Twist Butters.

7687 A1..... $ 9.45

Sugar Shells.

7688 A1 .. .. $ 8.10

Ladles.

7689 A1 Cream $12 15
7690 A1 Gravy . 16 20
7691 A1 Oyst . 25 10
7692 A1 Medium 43 20
7693 A1 Soup. 45 90

Knives.

7694 A1 Pie . $27 00
7695 A1 Cake 21 60

Spoons.

7696 A1 Coffee $ 4 23
7697 A1 Orange 5 40
7698 A1 Berry 21 60
7699 A1 " gilt 29 70

MELROSE

Tea Spoons.

7700 A1 . . . $ 4 28
7701 XII . . . 4 95
7702 Triple. . 5 85

Dessert Spoons.

7703 A1 $ 7 65
7704 XII 8 55
7705 Triple 9 90

Table Spoons.

7706 A1 $ 8 55
7707 XII . 9 90
7708 Triple. 11 70

Dessert Forks.

7709 A1 . $ 7 65
7710 XII 8 55
7711 Triple 9 90

Medium Forks.

7712 A1 $ 8 55
7713 XII 9 90
7714 Triple. 11 70

Twist Butters.

7715 A1 $ 9 45

Sugar Shells.

7716 A1 .$ 8 10

Berry Spoons.

7717 A1 Silver, $21 60
7718 A1 Gilt . . . 29 70

Spoons.

7719 Coffee . .$ 4 23
7720 Orange. . . 5 40

Ladles.

7721 A1 Cream $12 15
7722 A1 Gravy 16 20
7723 A1 Oyster 25 10
7724 A1 Medium 43 20
7725 A1 Soup 45 90

GUITARS Continued.

7977-95 Concert size. Golden oak back and sides; spruce top; three rings of fancy variegated wood inlaid around soundhole and bound with celluloid; front edge elaborately inlaid with fancy colored wood; front and back edges bound with celluloid; inlaid strip of variegated wood in back; mahogany neck; ebony finger board; celluloid bound; pearl position dots; German silver frets; rosewood veneered headpiece, beautifully hand polished; nickel plated patent heads and tailpiece.....each **9.50**

7978-100 Beautifully figured mahogany back and sides; spruce top; three rings of fancy variegated wood around soundhole and celluloid bound; front edge elaborately inlaid with fancy variegated wood; front and back edges bound with celluloid; beautiful strip of variegated wood inlaid in back; mahogany neck; ebony finger board, celluloid bound; pearl position dots; German silver frets; rosewood veneered headpiece; ebony bridge; beautifully hand polished; nickel plated patent heads.....each **10.00**

7979-105 Same description as No. 7978-100. Concert size.....each **10.50**

7980-125 Concert size. Solid rosewood back and sides; spruce top; four rings of variegated wood inlaid around soundhole and celluloid bound; front edge inlaid with variegated wood and celluloid; front and back celluloid bound; beautiful strip of variegated wood inlaid in back, mahogany neck; ebony finger board celluloid bound; pearl position dots; German silver frets; rosewood veneered headpiece, beautifully hand polished; nickel plated patent heads.

Each **12.50**

7981-195 Grand concert size. Solid rosewood back and sides; spruce top; three rings of wood, celluloid and pearl inlaid around soundhole, and celluloid bound; front edge inlaid with elaborate colored wood, celloid and pearl; front and back edges celluloid bound; beautiful strip of variegated wood inlaid in back; mahogany neck; ebony finger board, celluloid bound; fancy engraved pearl figures in positions; German silver frets; rosewood veneered headpiece, beautifully hand polished; ebony bridge; nickel plated patent heads.....each **19.50**

CHALLENGE MANDOLINS.

Excel in style, tone and finish. Every instrument guaranteed to be of best material and fitted with perfect finger boards and American made patent heads.

7964-35 9 ribs of birch, black inlay between ribs; spruce top; rosewood fingerboard; pearl position dots; German silver frets; edge inlaid with fancy wood and bound with celluloid; dark mahogany finish; nickel plated patent heads and tailpiece. each **3.50**

7965-45 9 ribs of solid mahogany, black inlay between ribs; rosewood apron and side straps; fine varnish finish; spruce top; rosewood fingerboard; pearl position dots; German silver frets; fancy colored wood around soundhole; edges inlaid with fancy colored wood and bound with celluloid, nickel plated patent heads and tailpiece.

Each **4.50**

7966-50 9 ribs of rosewood and maple, red inlay between ribs; spruce top; rosewood finger-board, pearl position dots; German silver frets; headpiece black veneered, imitation tortoise shell guard-plate; soundhole inlaid with fancy variegated wood and celluloid bound; hand polished, nickel plated patent heads and tailpiece ..... each **5.00**

7967-55 9 ribs of rosewood, white inlay between ribs; spruce top, mahogany neck; rosewood fingerboard; pearl position dots; German silver frets; headpiece black veneered; imitation tortoise shell guardplate, inlaid with fancy celluloid design, soundhole inlaid with fancy variegated wood; celluloid bound, highly hand polished; nickel plated patent heads and arm rest tailpiece.

Each **5.50**

7968-75 11 ribs of rosewood, white inlay between ribs; rosewood apron and side straps; spruce top; mahogany neck; rosewood fingerboard; pearl position dots; German silver frets; rosewood veneered headpiece; imitation tortoise shell guardplate inlaid with fancy pearl and wood design; soundhole and edges inlaid with fancy variegated wood and celluloid bound; bone saddle bridge, highly hand polished; nickel plated patent heads and armrest tailpiece.

Each **7.50**

7957-95 15 ribs of rosewood, white inlay between ribs, rosewood apron and side straps, celluloid bound, spruce top, mahogany neck, ebony fingerboard, pearl position dots, German silver frets, rosewood veneered headpiece, imitation tortoise shelt guard-plate inlaid with fancy celluloid design, sound-hole and edges beautifully inlaid with variegated wood and celluloid bound, bone saddle bridge, highly hand polished, nickel plated patent heads and arm-rest tailpiece.....each **9.50**

MANDOLINS—Continued.

7958-120 22 ribs of rosewood, white inlay between ribs, rosewood apron and side straps celluloid bound, spruce top, mahogany neck, ebony fingerboard celluloid bound, fancy pearl figures inlaid in positions and engraved, rosewood veneered headpiece inlaid with pearl figures engraved, imitation tortoise shell guard-plate inlaid with fancy celluloid design, sound-hole and edges inlaid with variegated wood and celluloid bound, bone saddle bridge, highly hand polished, nickel plated patent heads, arm-rest tailpiece,
Each **12.00**

7959-135 26 ribs of rosewood, white inlay between ribs, rosewood apron and side straps, celluloid bound, spruce top, mahogany neck, ebony fingerboard celluloid bound, fancy pearl figures inlaid in positions and engraved, ebony veneered headpiece inlaid with pearl figures engraved, imitation tortoise shell guard-plate inlaid with beautiful pearl design, sound-hole and edges elaborately inlaid with fancy variegated wood and celluloid and celluloid bound, bone saddle bridge, highly hand polished, nickel plated patent heads, arm-rest tailpiece.....each **13.50**

American Conservatory Mandolins.

7960-165 35 ribs of rosewood, white inlay between ribs, rosewood apron and side straps celluloid bound, spruce top, mahogany neck, ebony fingerboard celluloid bound, fancy engraved pearl figures inlaid in positions, German silver frets, scroll head, ebony veneered and inlaid with fancy engraved figures, imitation tortoise shell guard-plate inlaid with beautiful pearl design, sound-hole and edges elaborately inlaid with variegated wood, celluloid, and celluloid bound, bone saddle bridge, nickel plated covered patent heads, arm-rest tailpiece....each **16.50**

7961-210 43 ribs of rosewood, white inlay between ribs, rosewood apron and side straps extending around neck and celluloid bound, spruce top, mahogany neck, ebony fingerboard celluloid bound and elaborately inlaid with fancy engraved figures, imitation tortoise shell guard-plate inlaid with elaborate pearl design, sound-hole beautifully inlaid with fancy colored wood and pearl and celluloid bound, edges elaborately inlaid with variegated wood celluloid bound, and pearl, bone saddle bridge, nickel plated patent heads, arm-rest tailpiece.....each **21.00**

Twelve-String Mandolins.

7962-75 Something new. Mandolins with 12 strings make it easy for the beginner to get the tremolo and have a greater power of tone. Same description as No. 7955-45, but having 12 strings. .....each **7.50**

7963-120 New style Mandolin with 12 strings, otherwise same as No. 7968-75.
Each **12.00**

Guitar Cases.

5475-9 Brown canvas, leather bound, superior model and quality, for standard size guitar .....each **90c.**

5476-9 Brown canvas, leather bound, superior model and quality, for concert size guitar .....each **90c.**

5477-9 Brown canvas, leather bound, superior model and quality, for grand concert size .....each **90c.**

5478-12½ Brown canvas, leather bound, superior model and quality, for auditorium size guitar .....each **1.25**

Guitar Bags.

5479-6½ Cloth, with buttons, for ordinary size or standard size guitar.
Each **65c.**

5480-7½ Cloth, with buttons, for concert size guitar .....each **75c.**

5481-8½ Cloth, with buttons, for grand concert size guitar.....each **85c.**

5482-8½ Cloth, with buttons, for auditorium size guitar.....each **85c.**

Mandolin Cases for Patent-Head Mandolins Only.

5483-9 Brown canvas, leather bound flannel lined, with patent fastenings, superior model and quality.....each **90c.**

Mandolin Bags.

5484-4 Cloth, with patent fastenings for large model mandolin .....each **40c.**

Violin Cases.

5494-50

5486-2½ Pasteboard, marbled; good quality .....each **25c.**

5487-10 Wood, American, black varnished, half lined with flannel, handle and hooks, without lock.....each **1.00**

5488-12½ Wood, American, black varnished, half lined with flannel, handle and hooks, with lock.....each **1.25**

5489-10 Wood, ½ size; same as No. 5487-10 .....each **1.00**

5490-12½ ½ size; same as No. 5488-12½ .....each **1.25**

5491-10 Canvas, leather bound, lined with flannel, opens at end, superior model and quality.....each **1.00**

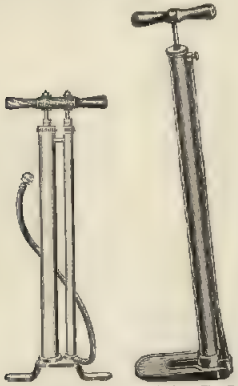
5493-32½ Black, covered with pebbled cloth, full fleece lined, nickel spring clasps and lock.....each **3.25**

5494-50 Leather covered full lined with velvet, leather handles, nickel lock with new spring clasps, black or orange color.
Each **5.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Judd & Leland's 1906 Tire Pumps Etc.

Judd & Leland Mfg. Co., Clifton Springs, N. Y., have added two new automobile tire pumps to their line for 1906. One is the "Hill" compounding pump, cylinders of



Hill" Compounding Pump "Leland" Auto Tire Pump

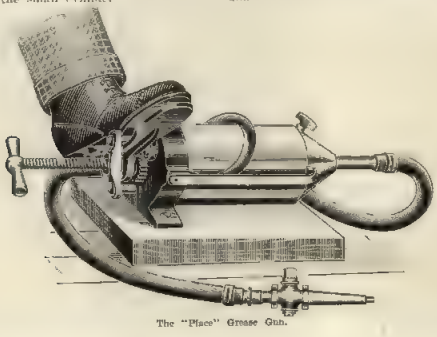
which are respectively 1¼ x 14 in. and ⅞ x 14 in. The cylinders are of heavy seamless brass with cast brass caps, stuffing boxes and heavy plungers. The pump is nicely nickel-plated and fitted with three feet of the best rubber tubing with large automobile nipple attached.

In the Hill double cylinder pump which is for use on 4 inch and 5 inch tires all back pressure is overcome by a check valve in the plunger of the small cylinder

The other new tire pump is an improved form of the "Leland." Its cylinder is 1¼x20 in. and rests on a hinged base, which folds over the end of the rod, preventing rattling. Two feet of tubing are furnished with their Lutest large swivel, which screws over the tire valve and is guaranteed air-tight.

The base of the Leland pump being breakable allows of storing it in the smallest possible space in a tool chest. When the pump is being operated the cylinder rests on reinforced shoulders of the base, giving the operator the greatest amount of purchase possible.

The "Place" grease gun, another 1906 addition to their line, is a foot-operated device for filling differential and transmission gear cases with grease. It holds about 6 lbs. of grease, and is suitable for use both in private and public garages. The foot-operating feature is a great advantage, as is readily seen, enabling the user to quickly fill the gear case with grease without getting smeared himself and with little exertion.



The "Place" Grease Gun.

The Cycle Skate

Cycle Skate & Sporting Goods Co., 34 Park St., New York, are on the market with a roller skate called the cycle skate, the construction of which is plainly seen from the

The Cycle Skate.

illustrations herewith. It has 5-in. cushion rubber tires and the frame is made of stamped steel. The length is adjustable, the middle tubes telescoping. All parts are interchangeable

Crow Bars

Solid Steel

No.		Per Pound
2	**Wedge Point Bars**	$0 10
4	**Pinch Point Bars**	$0.10

Assorted Weights, 10 to 30 Pounds

LINING BARS

No.		Per Pound
6	**Lining Bars.** Assorted Weights, 12 to 20 Pounds	$0 12

TAMPING BARS

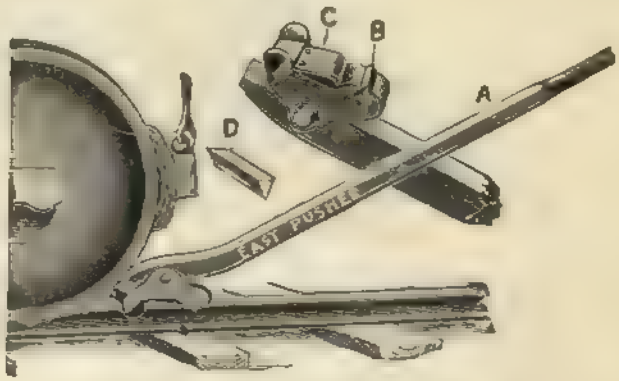
No.		Per Pound
8	**Tamping Bars** Assorted Weights, 10 to 12 Pounds	$0 14

Railroad Claw Bars

Solid Cast Steel, with Heel

No		Per Pound
12	**Railroad Claw Bars.** Weights, 25 to 30 Pounds	$0.16

Car Starters



Two Steel Bits, Length of Bar, 5¼ Feet

		Each
	Easy Car Pusher. Weight, 19 Pounds	$10 00

Bell Bottom Jack Screws

Wrought Iron Screw, Cast Iron Stand, Without Lever

Screw Diameter and Length	Capacity Tons	Height Overall In	Weight Pounds	Each	Screw Diameter and Length	Capacity Tons	Height Overall In	Weight Pounds	Each
1½ × 4	12	6½	10	$3.25	2 × 6	20	9¾	20	$5 25
1½ × 6	12	8½	12	3.75	2 × 8	20	12½	23	6 00
1½ × 8	12	12	15	4 25	2 × 10	20	14½	26	6 75
1½ × 10	12	14	16	4.75	2 × 12	20	16½	30	7 50
1½ × 12	12	16	22	5.25	2 × 14	20	18½	35	8 25
1½ × 14	12	18	23	6.00	2 × 16	20	20½	36	9 25
1½ × 16	12	20	24	6.75	2 × 18	20	22½	42	10 25
1¾ × 8	16	12	20	5 00	2½ × 12	28	18	38	10 75
1¾ × 10	16	14	21	5.75	2½ × 14	28	20	43	12 00
1¾ × 12	16	16	26	6.25	2½ × 16	28	22	47	13 25
1¾ × 14	16	18	30	6.75	2½ × 18	28	24	55	14 50
					3 × 18	36	24	72	22 00

Levers will be sent only when ordered, and will be charged for extra.

Mattocks

Painted Black, Polished Cast Steel Cutters

No.		Per Doz
10	**Long Cutter,** Weight, 6 Pounds each	$17 00
20	**Short Cutter,** Weight, 5½ Pounds each.	$16.00

Two Doz. in a Case

Pick Mattocks

No.		Per Doz.
30	Painted Black, Polished Cast Steel Point and Cutter, Weight, 6 Pounds each	$17 00

Two Doz. in a Case

Asphalt Mattocks

No.		Per Doz.
90	Soft Steel Eyes, Extra Cast Steel Cutters Weight, 9 Pounds each	$25 00

Two Doz. in a Case

Grub Hoes

Oval Eye, Extra Cast Steel, Painted Black

No.		Per Doz.
2	Weight, 4 Pounds each.	$13 50

Two Doz. in a Case

Accomac Hoes

Oval Eye, Tempered Steel Blade

No.		Per Doz.
6	6-in. Cut, Weight, 3½ Pounds each	$16 00

Two Doz. in a Case

Laib Co.
315
Louisville Ky

REVOLUTION COUNTERS.

ROUND.

FIG 871.

SQUARE.

FIG. 872.

Round Case Revolution Counters.

Size, Dial .. ..inches	12	10	8½	12	10	8½	6¾
Number of Wheels.....	8	8	8	6	6	6	6
Price, Brass Case. .....each	110.00	95.00	80.00	100.00	85.00	70.00	60.00
Price, Brass Case, Nickel Plated...each	114.00	98.00	82.50	104.00	88.00	72.50	62.00

Square Case Revolution Counters.

Size. ....inches	4½x1¾	5x1¾	5½x1¾	6x1¾
Number of Figures.....	4	5	6	7
Register.....	10,000	100,000	1,000,000	10,000,000
Price, Plain..... .....each	17 50	20.00	24.00	28.00
Price, Resetting... .... each	21.50	24.00	28.00	32.00
Size..... .....inches	7x2½	8x2½	9x2½	10x2½
Number of Figures.....	4	5	6	7
Register	10,000	100,000	1,000,000	10,000,000
Price, Plain.....each	20.00	24.00	28.00	32.00
Price, Resetting.....each	24.00	28.00	32.00	36.00

Laib Co.
314
Louisville Ky

PRESSURE RECORDING AND ALARM GAUGES.

EDSON No. 1.

FIG. 869.

BRISTOL.

FIG. 870.

Edson Gauges.

Number.....	1		2		3
Description.....	High or Low Pressure Alarm	High and Low Pressure Alarm	High and Low Pressure Alarm To Ring at a distance	High or Low Pressure Alarm To Ring at a distance	No Alarm
Price .....each	85.00	90.00	80.00	85 00	75.00

Prices include one years supply of Charts and Album for filing same.

Bristol Gauges.

Price, Nickel Plated, with Ink and 100 Charts.....each	50.00
Price, With Electric Alarm Attachment, Extra.....each	10.00
Price, Additional Charts.....per hundred	.75
Price, Additional Charts Printed with Copying Ink.....per hundred	.85
Price, Special Ink.. ..... per bottle	.35

ENGINEERS' FILLERS AND TALLOW POTS.

STEEL AND BRASS FILLER.

FIG. 2048.

TIN TALLOW POT

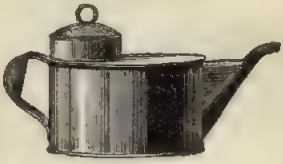


FIG. 2049.

STEEL TALLOW POT.

FIG. 2050.

Bronzed Steel and Brass Fillers.

Number	19	19 A	210	211	190	200	201
Capacity	1 Pint	1½ Pints	1 Quart	2 Quarts	1½ Pints	1 Quart	2 Quarts
Diameter.....inches	4½	4¾	5	6	4¾	5	6
Height.....inches	3½	4	5	6	4	5	6
Price, Bronzed Steel..per dozen	14.00	17.00	20.00	24.00	.....	.....	.....
Price, Brass.....per dozen	.....	.....	.....	.....	22.00	30.00	34.00

Tin Tallow Pots.

Capacity	2 Quarts
Price.....per dozen	24.00

Bronzed Steel Tallow Pots.

Number	212	213
Capacity	1 Quart	2 Quarts
Diameter.....inches	5	6
Height.....inches	5	6
Price.....per dozen	21.00	25.00

BRAZED STEEL TALLOW POTS.

FIG. 2051.

Number	40	41
Capacity	½ gallon	1 gallon
Price.....per dozen	15.00	18.00

Laib Co.
764
Louisville Ky

TORCHES OR LAMPS.

MALLEABLE IRON ENGINE TORCH.

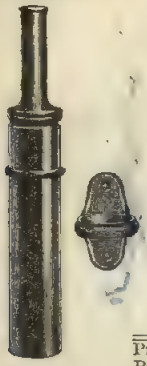


FIG. 2052.
No. 120.

MALLEABLE IRON SHOP OR ENGINEERS' TORCH.

FIG. 2053.
No. 115.

BRAZED STEEL LOCOMOTIVE OR ENGINEERS' TORCH.

FIG. 2054
No. 110.

Price, No. 120, 2 inches diameter; 13½ inches high, with Bracket.per doz.	8.00
Price, No. 115, 4 inches diameter; 9½ inches high.....per doz.	8.00
Price, No. 110.....per doz.	9.00

CAST FURNACE LAMP.

FIG. 2055.

BRAZED STEEL PYRAMID TORCH.

FIG. 2056.

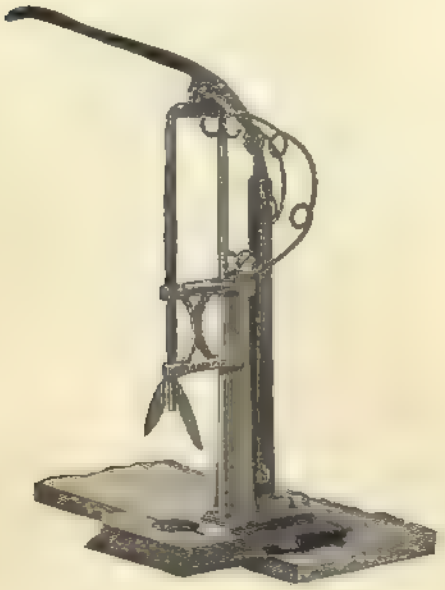
BRAZED STEEL BROAD TOP TORCH.

FIG. 2057.

Number	1	2	80	81	82	83	84	85	86
Capacity	2 Pints	3 Pints	½ Pint	1 Pint	1 Quart	1 Quart	2 Quarts	2 Quarts	4 Quarts
Number of Burners			1	1	1	2	1	2	2
Price, Furnace Lamp.....per dozen	7.50	9.00							
Price, Pyramid Torch.....per dozen			7.00	9.00	10.00	11.00	12.00	13.00	15.00

Number	87	90	91	92	93	94	95	96	
Capacity	4 Quarts	1 Pint	1 Quart	1 Quart	2 Quarts	2 Quarts	1 Gallon	1 Gallon	
Number of Burners	3 or 4	1	1	2	1	2	2	3 or 4	
Price, Pyramid Torch .....per dozen	18.00								
Price, Broad Top Torch...per dozen		9.00	10.00	11.00	12.00	13.00	15.00	18.00	

Fruit Pitters.



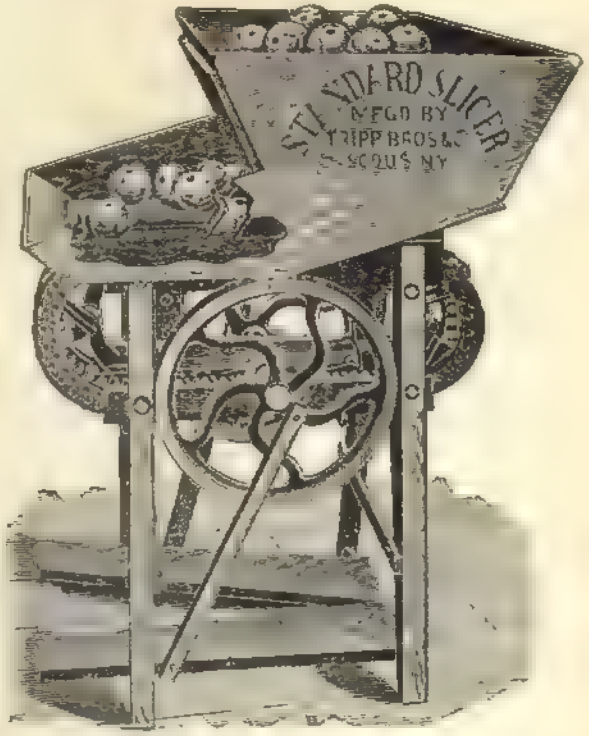
Code Curacolejo. Each

Eureka Fruit Pitter, for Plums, Apricots and Free Stone Peaches. Quickly Adjusted from Hand to Foot Power. . . . . $ 3.50

Extra Rubbers for Eureka Fruit Pitters. 50

Code Caradoc. Each

Enterprise Vegetable Slicer, $6 50

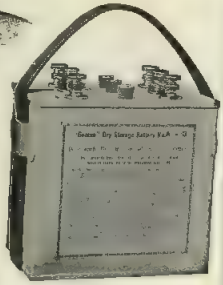


Code Caracallis. Each

Standard Apple Slicer, ... $20 00

"Geecee"

THE ONLY NON-LIQUID STORAGE BATTERY IN THE WORLD



"GEECEE" STORAGE BATTERY

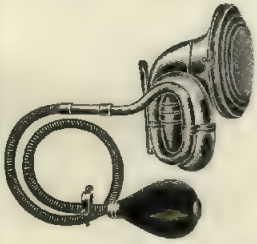
An unequalled ignitor. Higher in capacity and voltage than any wet battery now on the market.

Acid (Electrolyte) in suspended form. Can't spill or leak. Short circuiting an impossibility

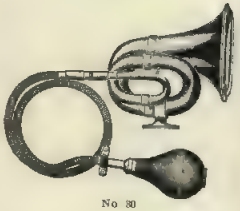
NATIONAL SALES CORPORATION
NEW YORK Sales Managers

ROYAL BATTERY CO.
143 Chambers St., NEW YORK

"ESCO" HORNS



No. 32



No 30

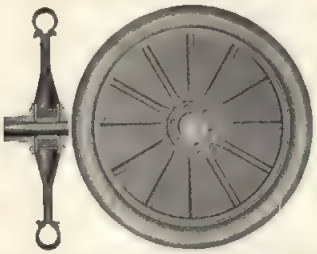
We actually manufacture our Horns and own our factory.
Send for prices and new 1906 Catalogue No. 65.

STEVENS & CO.

99 Chambers St., New York City, U. S. A.

The Only Wheel for the Automobile

Heretofore it has been necessary for motor car manufacturers to use a type of wheel which has, in construction, been similar to those which have been used on carriages and wagons. The automobile, however, is different from the horse-drawn vehicle, and as different conditions require different treatment, the carriage wheel has not been entirely suitable.



The Indestructible Steel Wheel

we are now marketing, is superior in every respect. It is lighter than wood, does not warp or get out of line and is easy to clean. As racing cars cover the spokes of the wheels to present a closed surface, this form of wheel construction must therefore be speedier. Can be used with stock hubs.

Those manufacturers who are first to adopt it will profit as a result of giving their trade something new and something better. Write us for further information.

TURNER & FISH, Manufacturers
CHICAGO, ILL.

Factory, 128 S. Clinton St. Offices—Suite 406 No. 17 Quincy Street

"ESCO" HORNS

No. 32

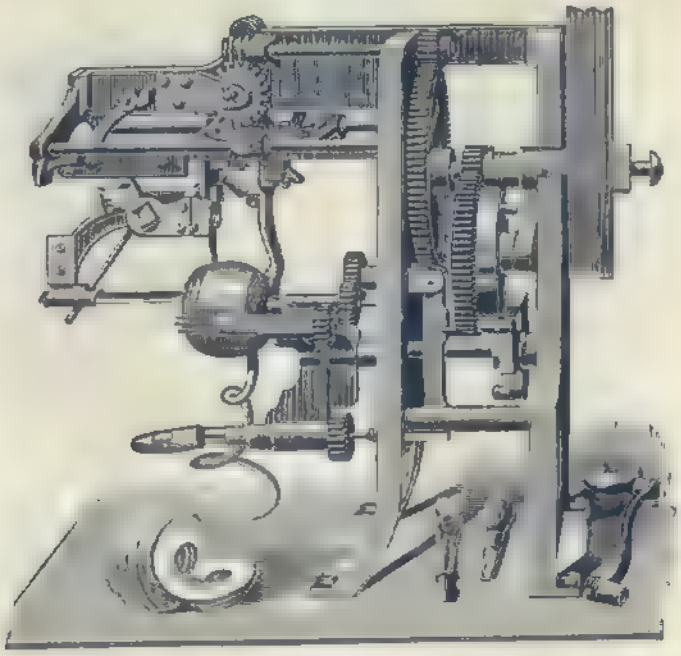
No. 30

We actually manufacture our Horns and own our factory.
Send for prices and new 1906 Catalogue No. 65.

STEVENS & CO.
99 Chambers St., New York City, U. S. A.

THE EUREKA APPLE PARER, CORER AND SLICER.

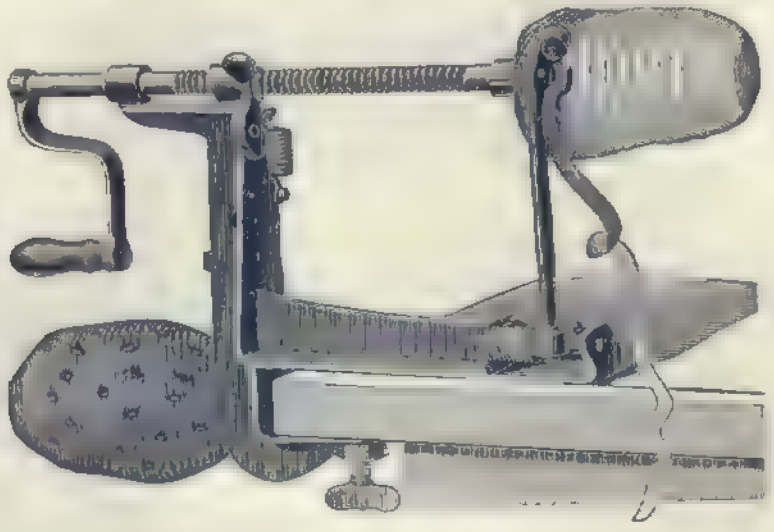
For Hand or Power.



The "Eureka" Parer is the only practical power apple parer, and cannot be excelled as a hand machine. The advantage in being able to operate it in either way must be recognized by everyone. These machines are in use all over the world wherever apples are grown, and are everywhere recognized as the standard machine for evaporators, canners and bakers. Every part of the "Eureka" is made with an eye to simplicity, durability and strength. All its parts are adjustable, and in case of breakage can be easily and cheaply duplicated. It has a record of eighty bushels a day by hand, and one hundred bushels by power. All the operator has to do is to put the apples on the fork and the machine does the rest.

Mfrs. price, complete . . . . . $20.00 Our net price $19.00

WHITE MOUNTAIN POTATO PARER.



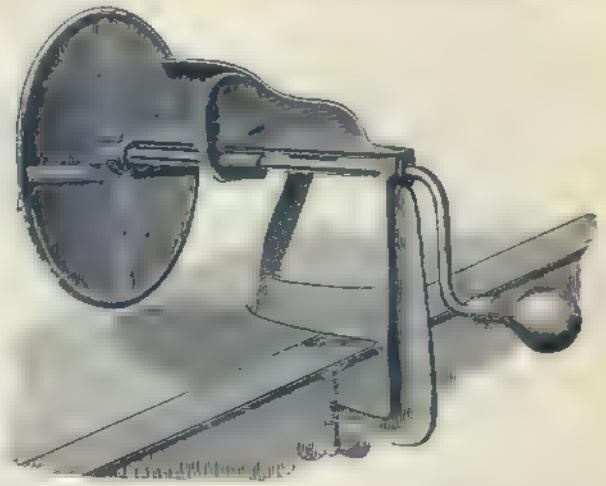
The White Mountain Potato Parer will not only pare a potato much better than can be done by hand, taking off a thinner paring from every shape and kind of potato, but will go into and clean out the eyes, saving altogether at least twenty per cent. It is free from the objections made to all styles of geared parers, is good in every respect, and so cheap as to be within the means of everybody. It will pare quinces or pears equally as well as potatoes.

Mfrs. price, per doz. . . . . $9.00 Our net price, each $0.65

ENTERPRISE RAISIN SEEDER.

		Doz	Each
No. 36, Family size.	Mfrs. price,	$12.00	Our net price, $1.00
" 38, Hotel "	" "	30 00	" " " 2.50

LIGHTNING POTATO SLICER.



Mfrs. price, per doz., $10.00 Our net price, each $0.75

THE 20th CENTURY VINEGAR AND LIQUID BARREL PUMP.

The Latest, Best and Most Perfect Barrel Pump Made.

(Patented January 26, 1904.)

This is the only pump made which will, by actual test, pump the entire contents of a barrel.

It being the only vacuum pump on the market, it may be introduced into a barrel through a 1½-inch hole. It is made from chemicalized wood and is strictly non-corrodible. It is absolutely better in every respect than any other barrel pump.

It does away with the slow, leaky faucet. Saves time and trouble of lifting barrel to bench, and saves one-half the room.

The top of barrel makes a handy receptacle for holding the funnels and measures, where they are always ready for use. It will pump the liquid at the slightest stroke of the piston.

Same pump made up to 10 feet in length for basement use.

Mfrs. price, per doz. . . . . $18.00 Our net price, each $1.25

ENTERPRISE SELF PRIMING AND MEASURING PUMP.

For molasses, heavy oils, tar, etc.

No priming necessary. Simply insert in barrel and turn crank.

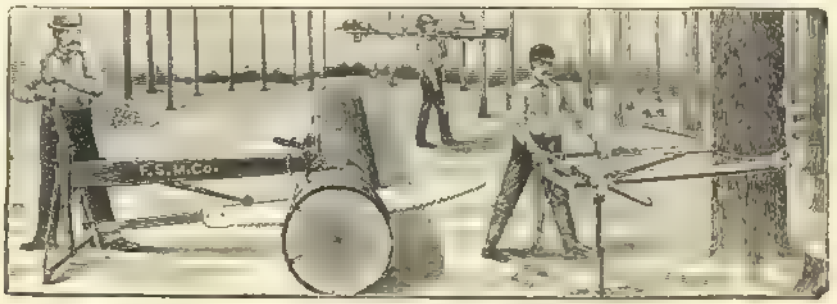
The new total registering device indicates quantity taken from barrel and enables grocer to anticipate his orders for a fresh supply.

Up-to-date grocers cannot afford to be without this time, labor and money saver.

Extended tube for pumping from cellar to first floor will be furnished when so ordered.

No. 97, Enterprise Pump complete with auger,	Mfrs. price,	$6.75	Our net price, $6.50
" 97, " " only . . .	" "	6.00	" " " 5 7
" 97, " Auger	"	75	" . . . --
Extension Tubing, per foot or fraction of foot	"	50	50

Cross Cut Folding Sawing Machines.



Code Artrifugo — Each

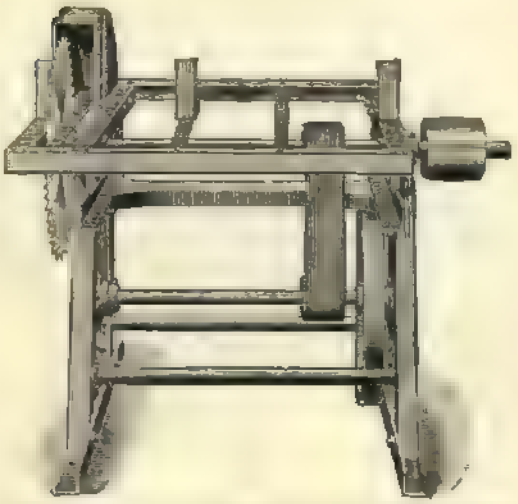
No. 1—Cross Cut Folding Sawing Machines, with 5½ Ft. Saw, ... $24.50
Weight, 41 lbs. Each, Complete.

Code Artriticas

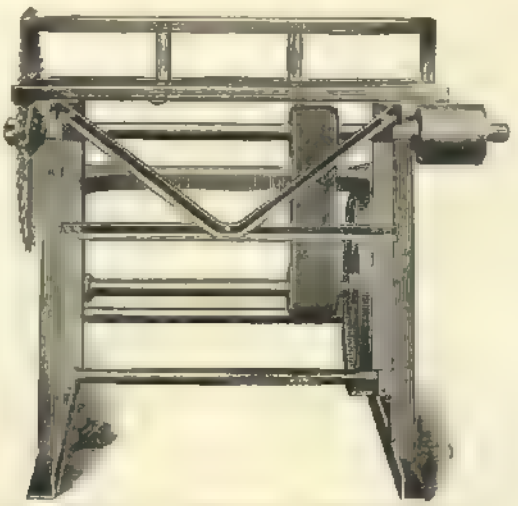
No. 2—Cross Cut Folding Sawing Machines, with 6 Ft. Saw, . . 25.50
Weight, 48 lbs. Each, Complete.

I always try to get timber clear of knots, and always cut the logs square; two men will cut more timber with a Cross Cut Folding Sawing Machine than four men can with a buck saw, and do it much easier. One man with a Folding Sawing Machine can saw more wood in a day than two men in any other way, and do it a great deal easier, as he never has to bend his back.

Belt Wood Saws.



Nos. 2 and 3 B. & H. Belt Saws, with Sliding Table.



Nos. 5 and 6 B. & H. Belt Saws, with Swinging Table

With Steel Frames and Sliding or Swinging Tables.

Code Artrologia. — Each

No. 2—B. & H. Belt Saw, with 24 In. Circular Saw, ... $52.50
Weight, 410 lbs. Each.

Code Artuatim.

No. 3—B. & H. Belt Saw, with 26 In. Circular Saw, ... 57.50
Weight, 420 lbs. Each.

Code Artunas. — Each

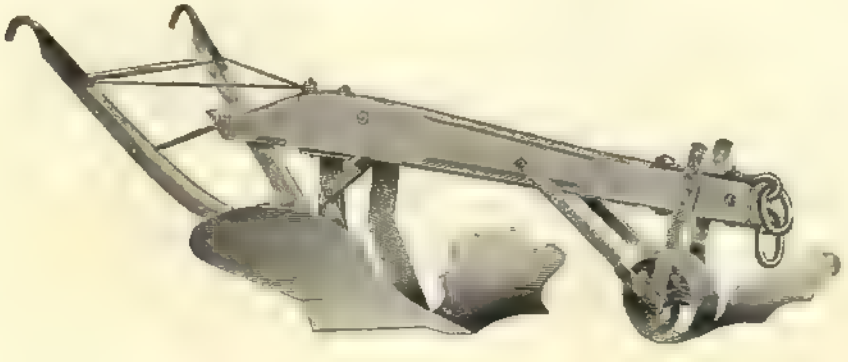
No. 5—B. & H. Belt Saw, with 24 In. Circular Saw, ... $52.50
Weight, 360 lbs. Each.

Code Artyblos.

No. 6—B. & H. Belt Saw, with 26 In. Circular Saw, ... 57.50
Weight, 370 lbs. Each.

The [illegible] is our Improved Style Steel Frame Wood Saw. They are built [illegible] of a Combination Wood and Iron Saw. The Frame is [illegible] of steel and [illegible] very strong and substantial in [illegible]. The Arbor is [illegible] and runs in [illegible]. The Lower is [illegible] the Saw Arbor [illegible] from there to the [illegible] Pulley Which Shaft Below the Table. The [illegible] of the [illegible] Wheels [illegible] are adjustable which admit of the Belt being tightened so that it cannot slip. The Tables [illegible] are [illegible] and are [illegible] ready for use

Road or Grading Plows.

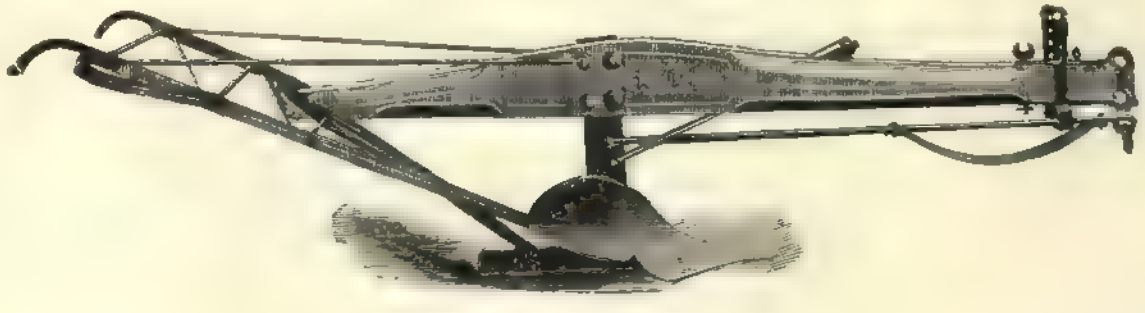


California Pattern.

	Each
Code Arumah **No. 10**—10 In. Cut, Weight 200 lbs., Including Extra Share and Wheel or Slide, ...	$47.00
Code Arumbis Extra Shares, for No. 10 Road Plows, ...	3 00

The California Pattern is of great strength, yet remarkable lightness to draft. It is made to cut deep rather than a wide furrow. Standard is Wrought Iron, Mould Board and Coulter are of Best Wrought Steel.

BAKER & HAMILTON

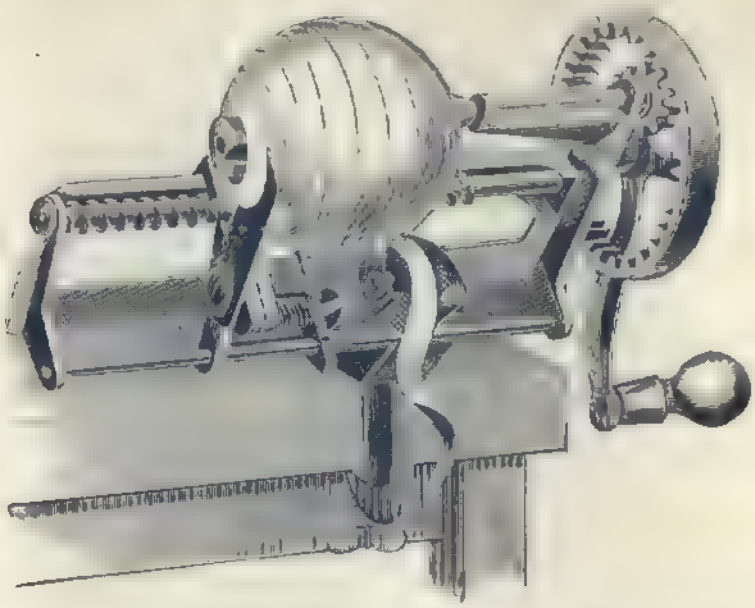


The Benicia.

	Each
Code Arurlus. **No. 8R**— 8 In. Cut, ...	$40.50
Weight, 300 lbs. Each	
Code Arusaces. **No. 10R**—10 In. Cut, ...	50 00
Weight, 325 lbs. Each.	
Code Arusjico. **No. 12R**—12 In. Cut	55 00
Weight, 355 lbs. Each.	
Code Arvandus. **No. 14R**—14 In. Cut, ...	65.00
Weight, 400 lbs. Each.	
Code Arvarom **No. 16R**—16 In. Cut.	75.00
Weight, 460 lbs. Each.	

The "Benicia" is the Strongest Single Walking Plow Made. Can run deep in the stiffest Adobe Soil, and will stand the draft of from 8 to 20 horses, according to the size of the Plow. Has Extra Heavy Mould Board, Heavy Long Bar Share, Flat Steel Standard, Oak Beam, Iron Handles thoroughly Braced

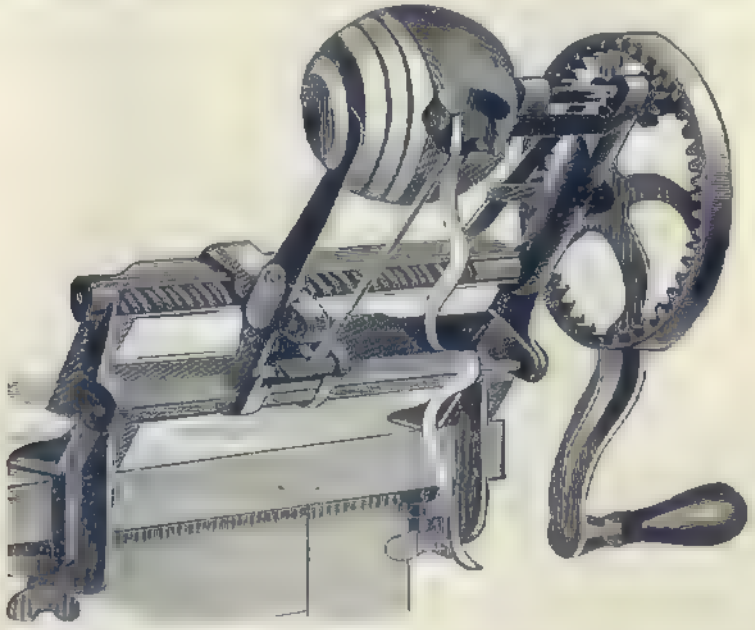
FAMILY "BAY STATE" APPLE PARER, CORER AND SLICER.



This machine has been remodeled, strengthened and otherwise improved. Its present shape allows all the parings and apple juice to fall clear of the working parts. It does good work every time, and is so strong and thoroughly made that it is much cheaper than any lower priced machine, considering the quantity and quality of the work performed. For hotels, restaurants and boarding houses or any place where any considerable quantity of apples are to be prepared, it will save its cost in a wonderfully short time. If desired it can be used to **pare only, without coring and slicing.**

Mfrs. price, per doz., ... $18.00 Our net price, each $1 25

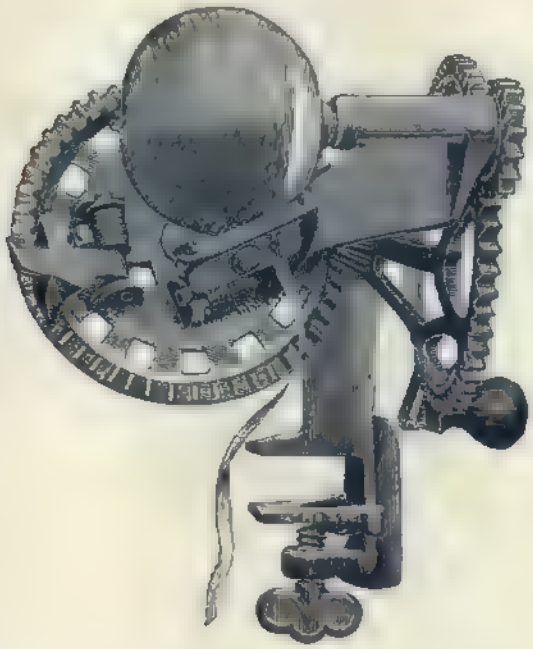
IMPROVED "BAY STATE" APPLE PARER, CORER AND SLICER.



Especially adapted for the use of packers and evaporators of fruit or in families where an extra strong parer is needed. It is practically the same as the Family Bay State, except in the matter of durability The machine is larger and stronger in every way. It has a steel screw and is fastened to the table at both ends, making it very firm. The parings, as in the smaller machine, fall clear of working parts. This machine has **an automatic push off for removing the cores.**

Mfrs. price, per doz., ... $42.00 Our net price, each . $3 00

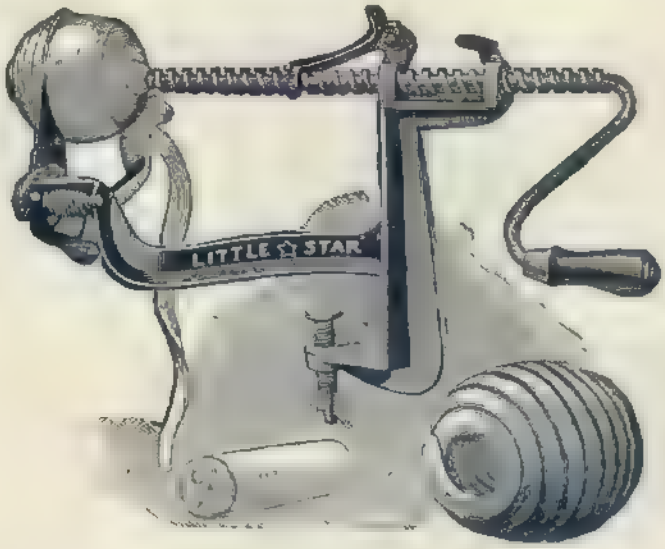
THE ROCKING TABLE APPLE PARER.



The Rocking Table Apple Parer, with push off, is so arranged that parings and juice cannot fall upon it. It is provided with improved clamping device so that the table will not be jammed. It is stronger, more durable, has less gears and working parts, will pare closer to the fork, keep cleaner, do better work, and more of it than any other machine.

Mfrs. price, per doz . . . . . $9 00 Our net price, each $0.65

THE "LITTLE STAR" APPLE PARER, CORER AND SLICER.



The Little Star Parer, Corer and Slicer, with push off, is the only machine so constructed that parings and juice cannot fall upon it. The only parer in which the paring knife always faces the fruit when brought against it. In our opinion this machine is the best family machine made.

Mfrs. price, per doz. . . . . $6.00 Our net price, each $0.50

MINIATURE AFTER-DINNER CUPS AND SAUCERS—Continued.

2792-12½ 2793-12½

2792-12½ Miniature China After-Dinner Cup and Saucer. Extra heavy embossed gold design; pearl lustre back ground. Height of cup, 1¾ in.; diameter 2 in Diameter of saucer, 4 in. 1 doz. assorted in box. **Per doz., $1.25**

2793-12½ Miniature China After-Dinner Cup and Saucer. Beautiful gold design with mottos, fancy blue iridescent China. Height of cup, 1⅜ in.; diameter, 2 in. Diameter of saucer, 4 in. 1 doz. assorted in box **Per doz., $1.25**

2794-12½ Miniature China After-Dinner Cup and Saucer. Fancy floral design with dark blue border striped with gilt. Height of cup, 1¾ in.; diameter, 2 in Diameter of saucer, 3⅜ in. 1 doz. assorted in box. **Per doz., $1.25**

AFTER DINNER CUPS AND SAUCERS.

2795-15 2796-15

2795-15 New fancy tinted China Cup and Saucer. Edges decorated with gilt embossing and mottos on blue floral background. Height of cup, 2½ in.; diameter, 2¾ in. Diameter of saucer, 4¾ in. 1 dozen assorted in box. **Per doz., $1.50**

2796-15 Extra fine quality China Cup and Saucer. Plain white China with heavy embossed gold design on cup. Height of cup, 2⅜ in.; diameter, 2⅝ in Diameter of saucer, 4¾ in 1 dozen assorted in box. **Per doz., $1.50**

2797-15 China After-Dinner Cup and Saucer. White background; heavy embossed gold and floral design and gold mottos. Height of cup, 2⅜ in.; diameter, 2⅝ in. Diameter of Saucer, 4¾ in. 1 dozen assorted in box **Per doz., $1.50**

2799-17½ 2800-17½

2799-17½ China After-Dinner Cup and Saucer. Dresden style; beautifully decorated with floral design and pink border. Height of cup, 2½ in.; diameter, 2¾ in. Diameter of saucer, 4¾ in ½ dozen assorted in box.

Per doz., $1.75

2800-17½ China After-Dinner Cup and Saucer. Beautifully embossed with heavy gilt design with motto, tinted back ground. Height of cup, 2½ in.; diameter, 2⅝ in. Diameter of saucer, 4¾ in. ½ dozen assorted in box

Per doz., $1.75

2801-20 2803-20

2801-20 New fancy shape China Cup and Saucer. With heavy raised embossed gold design, tinted background, gilt mottos. Height of cup, 2½ in.; diameter, 2⅝ in. Diameter of saucer, 5 in ½ dozen assorted in box

Per doz., $2.00

2803-20 New style fancy shape China Cup and Saucer, with heavy raised floral design in natural colors on white background Height of cup, 2½ in.; diameter, 2⅝ in. Diameter of saucer, 4¾ in ½ dozen assorted in box

Per doz., $2.00

2804-20 2805-20

2804-20 New style China Cup and Saucer. Pretty rose tinted China; beautiful embossed floral design in natural colors and gilt. Height of cup, 2⅜ in., diameter, 2⅝ in Diameter of saucer 4¾ in. ½ dozen assorted in box.

Per doz., $2.00

2805-20 New style China Cup and Saucer. Pretty tinted China with embossed floral design in natural colors Height of cup, 2½ in., diameter, 2½ in Diameter of Saucer, 5 in. ½ dozen assorted in box. **Per doz., $2.00**

2806-20 2807-20

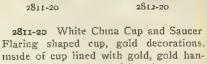
2806-20 New fancy shape Cup and Saucer; white background with heavily embossed floral design in gold and colors Height of cup, 2¾ in.; diameter, 2¾ in Diameter of saucer, 5½ in ½ dozen assorted in box. **Per doz., $2.00**

2807-20 Fancy shape extra quality China, with pearl iridescent background, heavily embossed gold design. Height of cup, 2⅜ in.; diameter, 2½ in. Diameter of saucer, 4¾ in. ½ dozen assorted in box **Per doz., $2.00**

2809-20 2810-20

2809-20 Fancy embossed After-Dinner China Cup and Saucer, with iridescent pearl background, heavily embossed gold design, gold handle, four small feet on cup. Height of cup, 2 in ; diameter, 1⅞ in Diameter of saucer, 4 in. ½ dozen assorted in box. **Per doz., $2.00**

2810-20 China Cup and Saucer; entire cup inside and outside lined with gold Height of cup, 1⅞ in ; diameter, 1¾ in Fluted gold lined saucer, diameter 4 in ½ dozen in box. **Per doz., $2.00**



2811-20 2812-20

2811-20 White China Cup and Saucer Flaring shaped cup, gold decorations, inside of cup lined with gold, gold handle. Height of cup, 1¾ in.; diameter, 2 in Scalloped edge gold decorated saucer, diameter 3¾ in. ½ dozen in box.

Per doz., $2.00

2812-20 Fancy shaped tinted China Cup and Saucer. Gold embossing on cup, four small feet, gold stripe round top of cup and on handle. Height of cup, 2½ in.; diameter, 2¾ in. Diameter of saucer, 4½ in ½ dozen assorted in box **Per doz., $2.00**

ASPINWALL POTATO MACHINERY.

The Aspinwall Plain Potato Planter.

This Planter will mark the row, open the furrow, drop and cover the seed, any way desired in one operation.

Deposit seed uniformly at desired depth, from three to nine inches.

Plant from five to nine acres with one man and team.

Work satisfactorily or hillsides, stony ground, bottom land or clover sod, up hill and down.

Cover the seed with moist earth, insuring good start.

Deposit seed in furrow perfectly straight and at uniform depth.

Plant whole or cut seed any distance apart, from ten to twenty-six inches.

Accomplish the work of ten men, and pay for itself in a single season on a moderate acreage.

Plain Potato Planter	Our net price, $60.00
Potato Planter with Fertilizer Attachment	" 75.00
Corn Planter Attachment, only	5.00
Fertilizer Attachment, previous to 1900	" 15.00
" since 1900	" 20.00

The Aspinwall Potato Cutter.

No dearth of advantage appears when speaking of the Aspinwall Potato Cutter. In brief its strong points are: 1. Optional removal of seed end. 2. Practical division of eyes. 3. Uniformity of size. 4. Equality of pulp, each piece being chunked. 5. Thin and vitiated pieces eliminated. 6. Ease, rapidity and cleanliness of cutting. 7. No bleeding fingers, as all danger of injury is removed. 8. Accuracy as compared with the average hand work. 9. Rapid transmission from cutter to ground in planting large acreages.

Potato Cutter . . . . . Our net price, $5.00

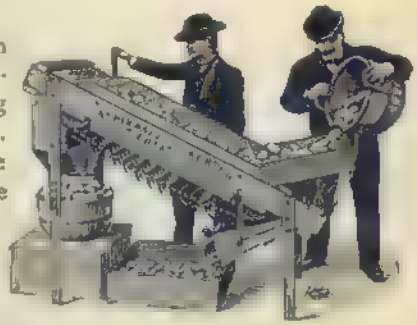
The Aspinwall Potato Digger.

This Digger certainly is a companion machine to the world-famous planter. The latter machine, with its accurate and automatic action, picks the potato with a thumb and finger-like movement, and even so the Digger may be described as having a system of fingers arranged to separate the potatoes from the earth, which is first pulverized by the first movement.

The Digger is adapted to all kinds and conditions of digging, on hillsides and level fields, among green or ripe tops, and wet or dry ground. It works in all soils in which potatoes can be grown; does not clog, and reasonably small, loose stones and trash do not phase it.

Potato Digger . . . . . Our net price, $125.00

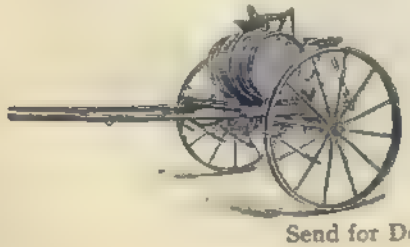
The Aspinwall Potato Sorter.



This machine is a new departure in Potato Sorters, using an elevator with long distance travel, which enables very rapid sorting, combined with excellent work. In the construction we gain another admirable feature in having the hopper down low, making easy work in shoveling and feeding the machine. The entire work is under control of the operator, and any potatoes which are decayed or ill-shaped may be removed while the work is progressing. There is no bruising or injuring the potatoes in the least.

Potato Sorter . . . . . Our net price, $25.00

The Aspinwall 4-Row Sprayer.

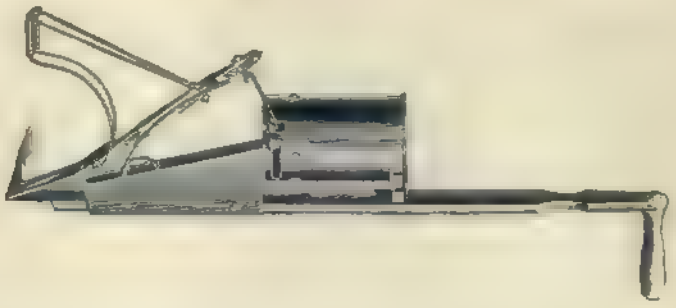


Generally, early in the growth of potatoes, spraying becomes necessary. In addition to the Colorado potato beetle, the leaf-flea beetle, in many localities, frequently begins early depredation. Bordeaux Mixture and Paris Green, used freely, serve to check both insects.

Four-row Sprayer, complete, ... Our net price, $60.00

Send for Descriptive Catalogue, Testimonials, etc. Mailed free.

AMERICAN STANDARD HAND CORN PLANTER.

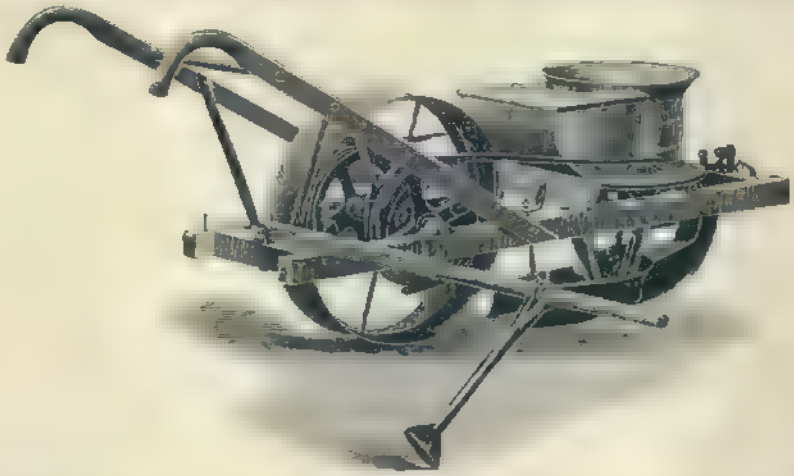


This planter is better known, has reached a larger sale, has proved more popular, and has given better satisfaction than any other hand planter ever manufactured.

The only planter containing an adjustable rotary dropping disc.

Mfrs. price, per doz. . . . . $36.00 Our net price, each $2.50

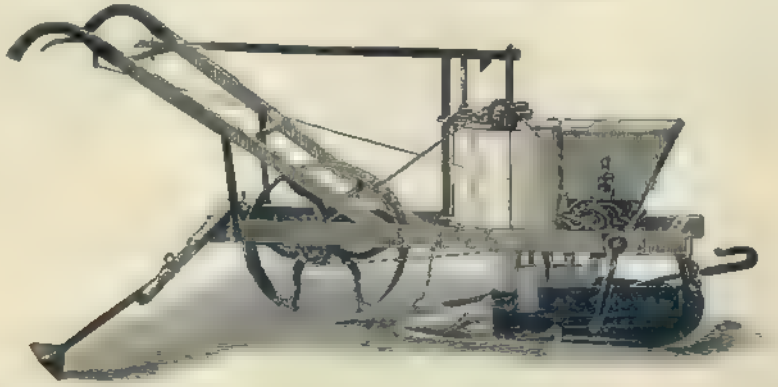
KING OF THE CORN FIELD CORN PLANTERS.



Plants field, ensilage and fodder corn, beans, peas, beet, buckwheat and other seeds of similar size. Drops any quantity of seed or fertilizer, as desired, in hills or drills. The 24 in. wheel drops 4½, 9, 12, 18, 24, 36 and 72 inches apart.

One horse planter, complete . . . . . Mfrs. price, $25.00 Our net price, $22.50

ECLIPSE CORN PLANTER.



The Eclipse Planter and Fertilizer Distributor is especially adapted to the wants of the New England farmer. Sows both seed and fertilizers with positive accuracy.

Eclipse Corn Planter . . . . . Mfrs. price, each, $25.00 Our net price, $22.50

Laib Co.
577
Louisville Ky

HOSE PIPES.

UNDERWRITERS.

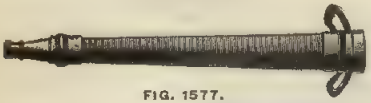


FIG. 1577.

SCREW TIP.

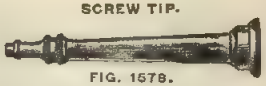


FIG. 1578.

Underwriters Hose Pipes.

Size.....inches	2	2½	2½	2½
Length.....inches	20	24	30	36
Price, Wound and Painted.....each	9.00	11.00	12.00	15.00
Price, Plain Brass.....each	7.50	9.50	11.00	13.50
Price, Wound and Painted without Handles....each	6.50	8.50	10.00	12.50
Price, Rubber Tube, Swivel Handles.....each	.....	.....	15.00	18.00
Price, Leather Tube, Swivel Handles.....each	.....	.....	.....	18.00

Hose Pipes, Screw Tip.

Size.....inches	¾	¾	1	1	1¼	1½	1½	1½
Length.....inches	7½	12	8½	12½	12	15	13	15
Price, Hose Thread, per dozen	8.00	10.00	10.00	12.00	20.00	24.00	25.00	30.00
Price, Pipe Thread, per dozen	9.20	11.20	11.20	13.20	21.20	25.00	27.50	32.50

Size.....inches	2	2	2	2½	2½	2½	2½	2½
Length.....inches	12	15	20	15	20	24	30	36
Price, Hose Thread, per dozen	38.00	45.00	50.00	75.00	96.00	100.00	144.00	157.00
Price, Pipe Thread, per dozen	41.00	48.00	53.00	78.50	99.50	103.50	150.00	163.00

PLAIN.

FIG. 1579.

WITH COCK.

FIG. 1580.

Plain Hose Pipes.

Size.....inches	¾	1	1¼	1½	2	2	2½	2½
Length.....inches	3	4	4¾	5¾	6¾	12	7½	15
Price, Hose Thread.....per dozen	4.00	5.00	12.00	18.00	26.00	34.00	37.00	65.00
Price, Pipe Thread.....per dozen	5.00	6.25	13.75	19.75	29.00	39.00	39.50	70.00

Hose Pipes, with Cock.

Size.....inches	¾	¾	1	1	1¼	1½	2	2	2½	2½
Length.....inches	8	12	8	12	12	12	12	20	20	24
Price, Hose Thread, per doz.	13.00	18.00	15.00	20.00	40.00	55.00	80.00	110.00	160.00	175.00
Price, Pipe Thread, per doz.	14.20	19.20	18.00	23.00	43.00	60.00	83.00	113.00	170.00	185.00

FULLER.

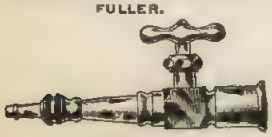


FIG. 1581.

Fuller Hose Pipes.

Size.....inches	¾	1
Price.....per dozen	18.00	30.00

GEM.

FIG. 1582.

Gem Hose Pipes.

Size.....inches	¾	1
Price.....per dozen	10.00	15.00

Laib Co.
576
Louisville Ky.

FIRE BUCKETS.

GALVANIZED IRON, FLAT BOTTOM.

FIG. 1573.

GALVANIZED IRON, ROUND BOTTOM.

FIG. 1574.

FIBRE, ROUND BOTTOM.

FIG. 1575.

Galvanized Fire Buckets.

Capacity	quarts	10	12	14	16
Price, Flat Bottom	per dozen	4.50	5.00	5.50	7.50
Price, Round Bottom	per dozen	6.75	7.25	7.50	.....
Price, Covers for Buckets	per dozen	2.00	2.25	2.50	3.00

Buckets painted red, 1.00 per dozen, Net. Covers painted red, 25 cents per dozen, Net.

Fibre Fire Buckets.

Capacity	quarts	12
Dimensions, Depth and Diameter	inches	11
Price	per dozen	4.20
Price, Covers	per dozen	1.60
Price, red band painted around top	each	.60

FIG. 1576

Safety Fire Bucket Tank.

Number		1	2
Height	inches	27	34
Diameter	inches	15¼	18
Number of Buckets in Tank		6	6
Capacity of Buckets	quarts	10	14
Price, with Buckets and Chemical	each	16.00	18.00

An Air Tight Tank containing a supply of Chemical Solution and six Fire Buckets, with self raising handles. The Tank and Buckets are made of heavy galvanized iron lined to prevent rust.

The Tank is Japanned red outside and has hinged cover closing on a rubber packing, making it air tight and preventing evaporation. The handles of the Buckets are weighted so that when the top bucket is removed the handle of the next raises Automatically. Every Tank is accompanied by a bag of dry compound.

Wear-Resisting Construction

that's the secret of the unparalleled success of the **Firestone Side Wire Tire.**

These tires have proven adequate to the demands of heavy commercial use when others have failed: not in one case, but in thousands. We have the **evidence** to support this statement. We are prepared to **back up** every fact by the supreme test of proof.

Then why not ***"Firestone"?***

FIRESTONE TIRE & RUBBER CO.

Akron, Ohio

New York **Chicago** **Philadelphia** **Boston**
St. Louis **Detroit**

PRINT BUTTER CARRIERS.

"Junior" Pattern.

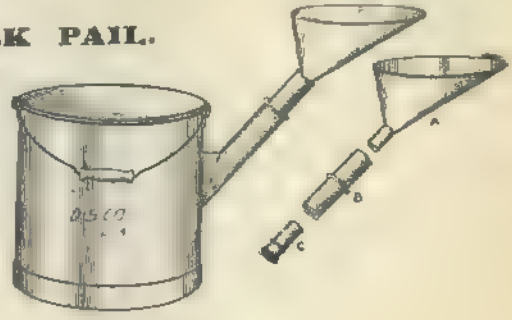
No. 6½,	capacity 12 lbs.,	Our net price	$1.50
" 7,	" 16 "	" " "	1.75
" 8,	" 24 "	" " "	2.00
" 9,	" 32 "	" " "	2.25
" 10,	" 40 "	" " "	2.50
" 11,	" 48 "	" " "	3.00

"Junior" Carriers will be fitted with galvanized iron ice boxes to fit in end of carrier, and bottom trays 4½ in. shorter than above, for 50 cts. each extra.

All carriers neatly stencilled with name of creamery or dairy without extra charge, when ordered in lots of six or more.

THE PERFECT MILK PAIL.

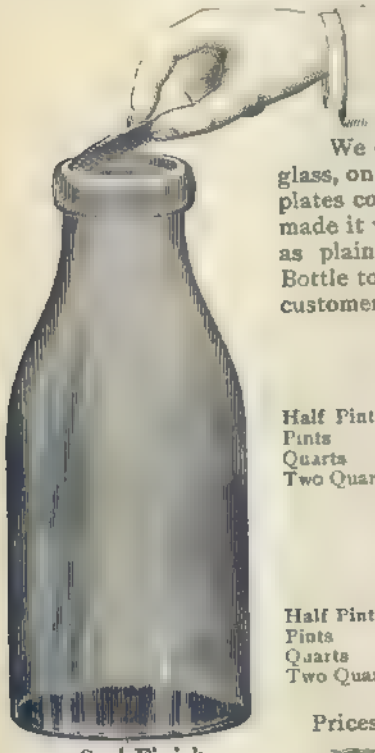
With our Perfect Milking Pails you can greatly improve the keeping qualities of your milk. The Perfect Milking Pail is strongly made from heavy tin, carefully soldered inside and out, has a tight fitting cover and the pail answers as a milking stool. The cover of the pail is flanged and projects over the edge and prevents any dirt or specks from getting into the milk. Our Perfect Pail is fitted with a bottom hoop similar to our Railroad Milk Cans, this hoop taking all the hard wear and scuffing on the bottom of the pail. Our net price each, $3.50.



FLINT GLASS MILK BOTTLES.

Packed in ¼ gross boxes.

We can letter bottles with your name, etc., blown in the glass, on orders for not less than two gross of a size. Lettered plates cost $3.00 each size on the first order. After plate is made it will last for years. Lettered bottles cost the same as plain. All our bottles are lettered on one side: "This Bottle to be Washed and Returned." The majority of your customers will wash the bottles before returning them.



Seal Finish.

Lightning Milk Bottles.

Complete with stopper attached.

Half Pints	Our net price, per doz.,	$0.75
Pints	" "	.90
Quarts	" "	1.00
Two Quarts	" "	1.75

Paper caps, for making stopper tight, $0.75 per 1000.

Seal Finish Milk Bottles.

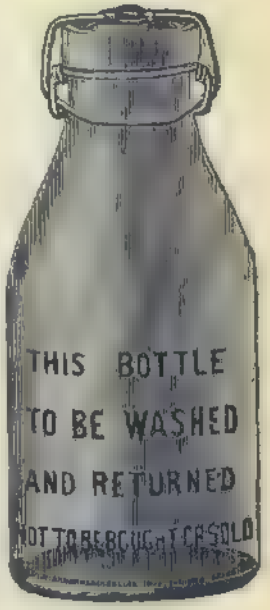
To take the Thatcher Common Sense Pulp Stopper.

Half Pints	Our net price, per doz.,	$0.65
Pints	" "	.75
Quarts	" "	1.00
Two Quarts	" "	1.50

No. 2 Thatcher Paper Discs, $0.50 per 1000.

Prices in quantities of one gross or more, on application.

☞ All orders filled with latest pattern Round Bottom Bottles, unless otherwise specified.



Lightning.

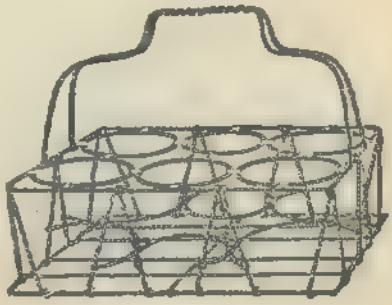
WIRE MILK BOTTLE BASKETS.

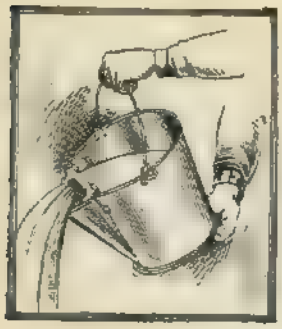
These baskets will he found a great convenience in delivering milk and cream put up in glass bottles. The per cent. of breakage will be greatly reduced and much less time will be taken for delivery. The baskets are strongly made and with proper care should last almost indefinitely.

They are made in the following patterns, viz

One to hold 6 Quarts.
" 4 " and 2 Pints.
One to hold 4 Two Quarts
" 6 Pints.

Our net price for any of the above, $1.00 each.





THE GEM COMBINATION MILK PAIL.

This Milk Pail has a removable Wire Cloth Strainer, and constructed of steel with wire cloth, and can readily be converted into a cloth or muslin strainer by covering the frame with muslin and inserting the frame in place. It has none of the disadvantages of the old style milk pail.

10 quarts	.	Mfrs. price, per doz.				$10.00	Our net price, each,					$0.75
12 "	.	"	"	"	"	12.00	"	"	"	"		.85
14 "	.	"	"	"	"	15.00	"	"	"	"		1.00

PARCHMENT BUTTER PAPER.

This paper is purely vegetable in its composition and therefore superior for wrapping ball or print butter. Being thoroughly impervious to air, oil or water, it protects the butter much better than muslin It should be wet in pure cold water before using.

We have adopted the "30 lb." weight as standard and fill all orders with this thickness, and of *first quality only*, which will be found the most satisfactory and in the end the cheapest.

Basis: 500 sheets, 24 x 36, equals 30 lbs.

We carry the following sizes in stock but can furnish promptly any size wanted.

7 x 8 inches, suitable for Blanchard ½-lb. print.
8 x 12 " " " " 1-lb. "
9 x 12 "

Mfrs. price . . . . . 20 cts. per lb.

12 x 12 inches, suitable for Blanchard 2-lb print.
12 x 18 "
24 x 36 "

Our net price . . . . . 18 cts. per lb.

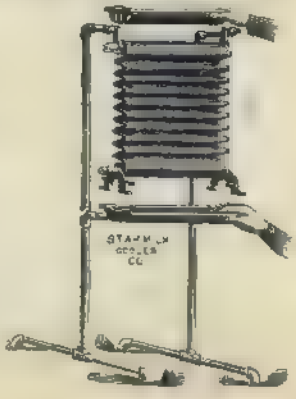
MILK AND CREAM COOLER-AERATOR.

Equally well adapted to the use of any cooling medium, either running water, ice water, or if a very low temperature is not required, ordinary well or spring water.

Special Claims.—It is a perfect aerator, removing all flavors arising from excessive cabbage, turnip or silo rations. It is a complete deodorizer—removing the animal heat or cowy taste and all odors arising from the absorption by the milk of stable or other unpleasant gases. It is a thorough cooler—reducing the temperature of the milk in one minute nearly to the temperature of the cooling medium. It is as simple in construction and as easily cleaned as a pail—no joints or seams for the harboring of impurities, and no crooked pipes to rust.

No.	Milk or Cream Receiver	Water Receiver	Size of Dairy	Takes care of Milkers	
1.	Capacity 3 gal.	Capacity 5½ gal.	1 to 10 cows	2	Our net price, $7.00
2.	" 4½ "	" 12 "	10 to 25 "	3	" 7.00
3.	" 5½ "	" 20 "	25 to 50 "	5	" 8.00
4.	" 11½ "	" 28 "	50 to 100 "	8	" 10.00
Baby	. .	cream from any hand separator			. . . 1.50

CREAM COOLER.

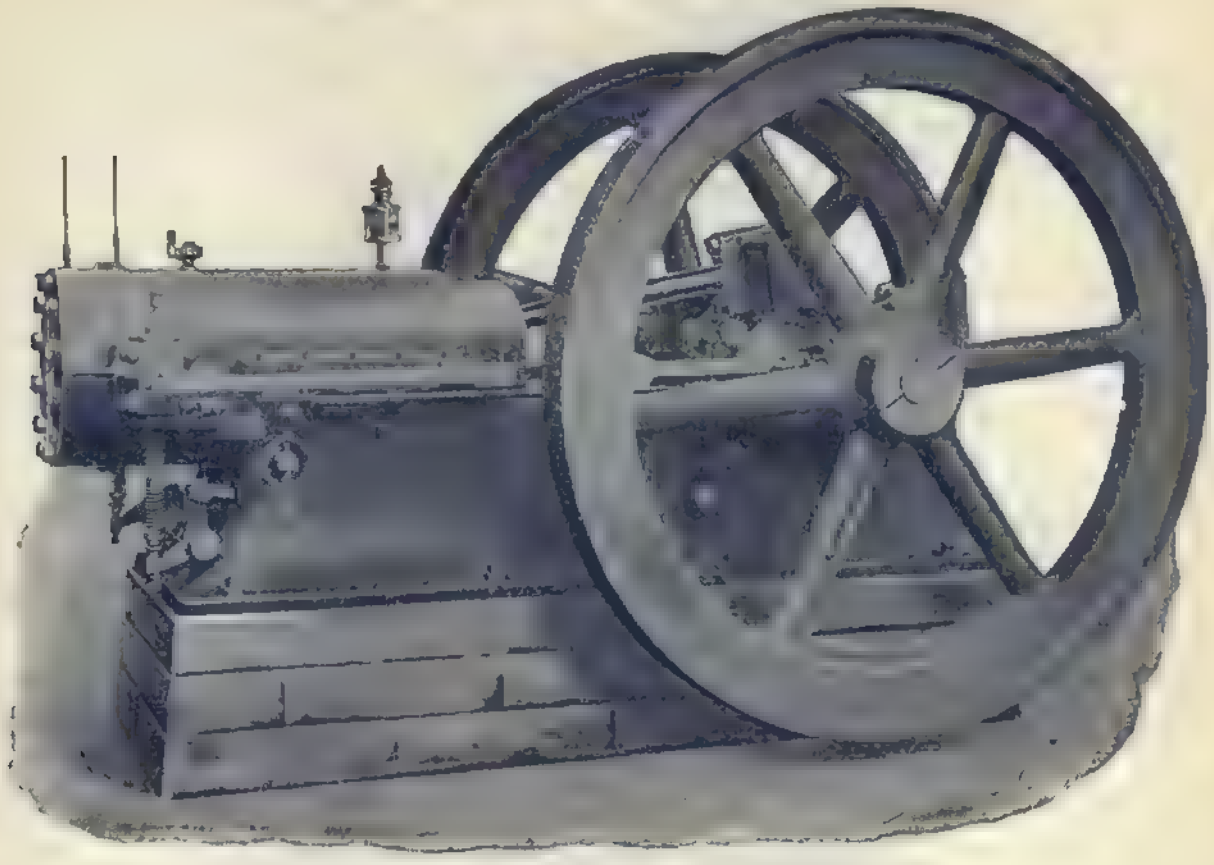


Will cool the quantity of cream stated to within two degrees of the temperature of the water as fast as it comes from the separator. Can be set on stand hung from ceiling, or from side arm brackets. Water connection for ¾ in. hose.

Regular size 22 inches high; special sizes made to order. Cream has a downward flow of 40 inches over the cold surface. Capacity guaranteed; ample reserve.

	Our Net Price
No. C.—Removable Trough, for 2,500 lb. Separator, will cool 50 gal. cream per hour	$15.00
No. D.—Removable Trough, for 3,000 lb. Separator, will cool 75 gal. cream per hour	20.00
Stands for No. C and No. D	5.00
Side Arm Brackets	2.00
Pair of Brackets	.60

FOOS GAS AND GASOLINE ENGINES.



Foos Standard Engines, Sizes 2 to 80 Horse-power.

Ever since Gas and Gasoline Engines have been made, it has been possible to buy the crude and unfinished product of inventors at almost any price. New engines are almost daily forced on the market at whatever price they will bring, but actual experience has proved that the majority are faulty in design and construction, costly and unreliable in operation, short lived and dangerously unsafe. They have disappointed the purchaser by their unfitness for practical use.

Fourteen years' experience in building Foos Engines enables the manufacturer to furnish machines containing the very best mechanical features, economical in the use of fuel, absolutely reliable and easy to operate. All new devices were thoroughly tested before being adopted. At the same time no expense has been spared in making improvements which add to the efficiency and durability of the Foos Engines.

H P.	Shipping Weight.	Revolutions per min.	Size of Pulley.	H. P.	Shipping Weight.	Revolutions per min	Size of Pulley
2	1,050 lbs.	390	8 x 4 in.	18	4,500 lbs.	200	24 x 12 in
3	1,125 "	380	8 x 4 "	22	5,500 "	240	24 x 14 "
4	1,600 "	330	9 x 6 "	26	6,300 "	230	32 x 8 "
5	1,850 "	320	10 x 8 "	30	7,200 "	220	36 x 9 "
7	2,100 "	310	10 x 8 "	35	8,200 "	200	40 x 10 "
9	2,500 "	300	16 x 8 "	40	9,500 "	185	44 x 10 "
11	3,150 "	290	16 x 10 "	50	13,000 "	170	54 x 13 "
13	3,800 "	280	16 x 10 "	75	19,000 "	160	66 x 16 "
15	4 00 "	270	20 x 12				

Always state purpose for which engine is required. Foos Portable Engines mounted on steel trucks. Prices of Stationary and Portable Engines on application.

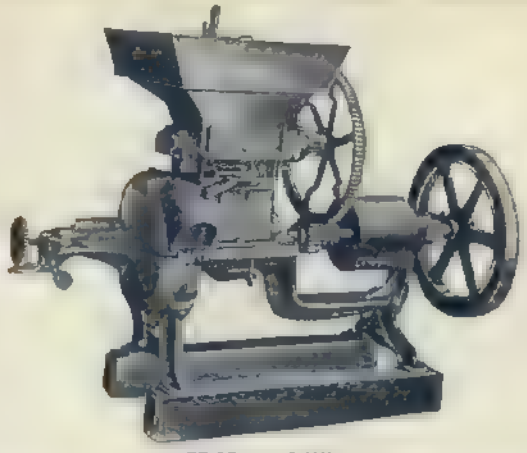
Engines are thoroughly tested and put into satisfactory running order before leaving the factory The method of testing is a guarantee that the engine will do all that we claim for it.

A reasonable margin of power is allowed in all cases, but engines are not guaranteed to furnish more than their rated horse-power. Ample allowance should be made in every case when estimating the power required for operating certain machinery. Application for prices should be specific in stating the kind and amount of machinery to be driven and the fuel to be used.

Purchasers should remember that an engine will be more durable and efficient if not worked to its utmost capacity. An allowance of 10 per cent over the estimated power requirements will be beneficial to the engine, and will give power for additional machinery if subsequently installed.

Catalogues giving detailed description of the Foos Engines mailed free.

SCIENTIFIC GRINDING MILLS.



H No. 1 Mill.

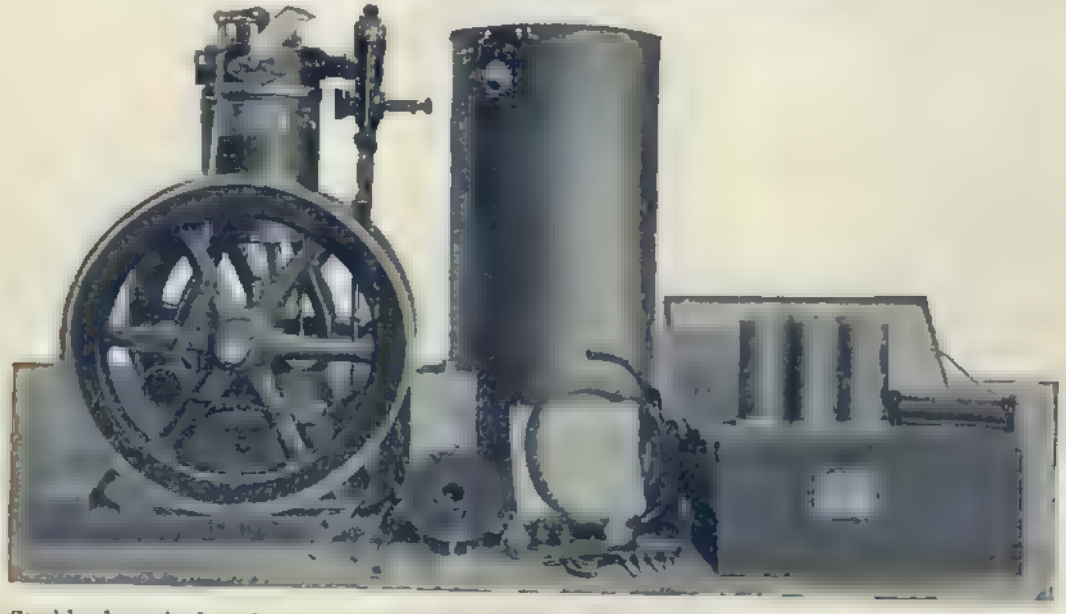
The Scientific Grinding Mills are acknowledged as the standard of excellence in grinding machinery the country over. We can also furnish Corn Meal Bolters, Horse Powers, etc., all these machines being improved and perfected by the light of practical experience and observation.

The following sizes carried in stock by us are adapted to the wants of New England.

Complete descriptive catalogues of the Scientific Mills, giving much valuable information regarding corn meal, etc., mailed on application.

	H. P. Required.	Driving Pulley.	Speed R. P. M.	Capacity Bush. Grain.	Weight	Floor Space.	Mfrs. Price.	Our Net Price.
H No. 1	4 to 6	8 x 6	800 to 1000	8 to 20	500	45 x 21	$65.00	~~$58.50~~
L " 1	8 to 10	8 x 6	1000 to 1200	15 to 40	550	57 x 22	75.00	67 50
N " 1	10 to 15	10 x 8	900 to 1000	20 to 60	775	64 x 26	95.00	85 50
T " 1	15 to 20	14 x 10	800 to 1000	40 to 90	1400	72 x 28	155.00	139 50

STODDARD GASOLINE ENGINES.



The Stoddard vertical engines are especially satisfactory as portables, and we are putting out large numbers of them for farm use.

They are simple in construction and light in weight. We guarantee them to meet all requirements.

Size H. P.	Speed R. P. M.	Regular Pulley.	Floor Space.	Shipping Weight.	Our Net Price.
1¾	400	6 x 4	16 x 20	400	$120.00
2¾	400	14 x 4	18 x 24	500	150.00
4¾	375	16 x 6	24 x 30	900	225.00
6	375	16 x 6	26 x 33	1050	260.00
8	325	20 x 6	32 x 36	1500	350.00
10	300	24 x 6	38 x 46	1800	425.00

Descriptive catalogues mailed on application.

Foot Ball Sundries

HEAD HARNESS.

No. 50

No. 39

No. 36

Nos. 43 and 30

No.		Each
50	—Finest Quality Soft Sole Leather, With Formed Cap Designed With Protection for Back of Head, Lined With Finest Absorbent Felt, Adjustable in Size,	$3.00
43	—Professional Model, Soft Tan Colored Leather Correctly Padded and Ventilated With Protection for Back of Head, Adjustable in Size,	2.50
39	—Russet Leather, Thoroughly Padded With Wool Felt, With Extension for Protection of Back of Head, Adjustable in Size,	2.00
36	—Heavy Black Cordovan Leather, Padded With Absorbent Felt, With Protection for Base of Brain, Adjustable to Any Size,	1.50
30	—Helmet Style Made of Heavy Canvas Nicely Padded Style is Similar to No 43,	1.00

SHIN GUARDS.

No.		Per Pair
24	—Mens' Size Heavy Brown Tan Leather Face, Heavy Canvas Back, Black Leather Straps, Padded,	$1.25
20	—Mens' Size, Heavy Khaki Army Cloth, Cane Ribs, Leather Straps, Padded,	1.00
18	—Mens' Size, Heavy Tan Canvas, Cane Ribs, Leather Straps, Bound Edges,	.75

WRIST AND ANKLE SUPPORTERS.

Ankle Nos. 9 and 6

Wrist Nos 12 and 2

No.		Per Pair
9	—Ankle, Tan Sheepskin Chamois Lined,	$1.00
6	—Ankle, Tan Sheepskin, Not Lined,	.50
12	—Wrist, Double Strap, Black Cordovan Kid Leather,	.25
2	—Wrist, Single Strap, Black Cordovan Kid Leather,	.25

SHOULDER AND ELBOW PADS.

Nos 5SL and 5S Shoulder

Nos 5EL and 5E. Elbow

No.		Per Pair
5SL	—With Eyelets and Lacing, Detaches by Unlacing, Oak Tan Leather, Padded and Quilted,	$1.00
5S	Oak Tan Kid as Above Without Lacing Feature,	.75
5EL	—For Elbow, Otherwise Same as No. 5SL,	.85
5E	—For Elbow, Otherwise Same as No. 5S,	.75

NOSE GUARD.

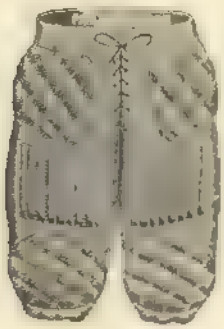
Morrill Patent.

Made of the Finest Rubber. No Wire or Metal Used.

No		Each
1	—Mens' Size,	$0.50
1B	—Boys' Size,	.50

Foot Ball Sundries

PANTS.



Style 149

Style 140

Style 134M

No.		Per Pair
149	—Genuine Army Khaki Cloth, Cane Reed Thighs, Hair Tufted, Hip and Knee Pads, Woven Eyelets for Lacing,	$3.00
146	—Finest Quality Army Khaki Cloth, Hips and Knees Padded, Cane Reed Thighs, Woven Eyelets for Lacing,	2.00
140	—Finest Tan Duck, Full Padded Hips and Knees, Cane Reed Thighs, Woven Eyelets for Lacing,	1.50

No.		Per Pair
134M	—Good Quality Khaki Colored Duck, Padded Hips and Knees, Reed Thigh Effect, Woven Eyelets for Lacing, Made in Men's Sizes, 32 to 40 inch Waist,	$1.00
134B	—Same material and Style as No. 134M, except Made in Boys' Sizes, 22 to 30 Waist,	.85

UNION SUITS.

No.		Suit, Each
184	—Made of Genuine Army Khaki. Wide Elastic Belt, Hair Tufted Hip and Knee Pads, Cane Reed Thighs Double Sewed, Taped Vest, Woven, Lacing Eyelets,	$5.00
184S	—Same as above but with Elastic on shoulders instead of Waist, a New Feature,	5.00

ATHLETIC HOSE.

Striped

Made of the very Best Yarns in their respective grades, Striped.

No.		Per Pair
33	—Good Quality Ribbed Wool, Full Fashioned,	$0.80
25	—Special Grade of Good Weight Wool,	.65
7	Good Grade Ribbed Cotton,	.35

ATHLETIC SUPPORTERS.

No. 218

No. 208

No. 207

No.		Each
218	Black Elastic Waist 6 inches Wide and Black Jersey Combination,	$1.00
208	—"Auto Jock," Extra Quality Lisle Thread Elastic, Improved Natural Fitting, One Piece Elastic Pocket,	.75
207	—The Hercules, Made Same as No. 208, except Pouch is of Linen Mesh,	.75
Bike	—All Elastic Suspensory,	.75

"Coops" Top Fixtures

C. W. Coops Co., 3 Appleton street, Boston, Mass., are putting out a line of fixtures for extension tops. The front section of tops fitted with these fixtures can be taken off, carried back and fastened to the rear section so that the top when dropped forms a dust shield. The bow sockets are furnished off set or straight and are of a fine quality bronze.

Coops Off-Set Bow Socket.

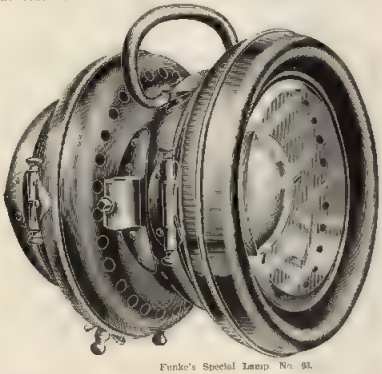
The Coops Co. also manufacture bronze

Coops Bow Sockets, front and rear groups clustered together.

D rings, auto snaps, bow separators and other parts used in automobile top building. Their best fixtures are suitable for cars of the finest types, but they also make fixtures of similar style but lighter, and less expensive.

Funke's 1906 Lamps

A. H. Funke, 83 Chambers St., New York, has two handsome additions to his line of lamps for 1906. One is similar to a well-known French lamp and is illustrated in his advertisement on another page in this issue of the Journal. This style is made in three sizes, Nos. 100, 101 and 102 listing respectively at $12.50, $15 and $20, and measuring respectively 9, 10 and 11 inches across the front. It has a genuine Mangin mirror lens reflector.



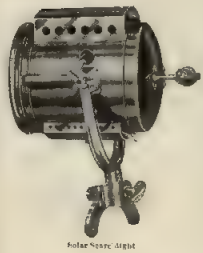
Funke's Special Lamp No. 93.

The other is known as No. 93 and is illustrated herewith. It is an extremely handsome lamp, with heavy brass cast hinges, handles, etc. It lists at $25, and is 10½ inches across the front. It has no chimney, a peculiar feature.

Dann Bros. New Roof Panel for Limousines

For 1906 Dann Bros. & Co., of New Haven, Conn., have brought out a new 4-ply 7-16 in. thick laminated wood panel for roofs of limousine bodies. The inside ply is mahogany 1-16 in. thick, ready for natural finish. The inner plies are laid with the grain running crosswise to the grain of the outer plies. This construction makes a very stiff panel which will not crack or split. Being made to the curve desired, it always retains its shape.

The American Buggy Top Co., of Jackson, Mich., have increased their facilities by the erection of a two-story brick building, 75x125 feet, and are adding a complete drop forge plant and a wood working department which, in connection with their present upholstery and trimming departments, will enable them to make all parts of their tops in their own factory.



Solar Searchlight

SOLAR LAMPS

Searchlights and Generators

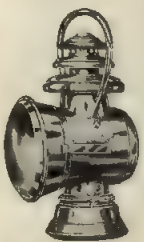
Solar Parabolere Generator Lamp

FOR

Cycles, Motor Cars and Launches

Solar Gas Cycle Lamp

Gas and Oil
All Sizes
All Prices
All Kinds
All Satisfy



Solar Triple Top Oil Side Lamp

1906 Models now ready for delivery

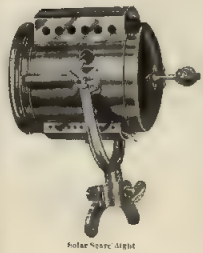
Made by the Largest Exclusive Manufacturers of Cycle and Motor Car Lamps in the World.

Write for Prices

BADGER BRASS MFG. CO.

Factory, KENOSHA, WIS.

Eastern Office - - - - 11 Warren St., New York City



Solar Searchlight

SOLAR LAMPS

Searchlights and Generators

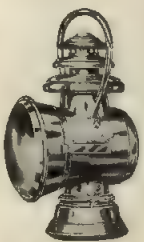
Solar Parabolere Generator Lamp

FOR

Cycles, Motor Cars and Launches

Solar Gas Cycle Lamp

Gas and Oil
All Sizes
All Prices
All Kinds
All Satisfy



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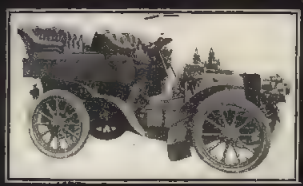
Eastern Office - - - - 11 Warren St., New York City

THE OIL THAT WILL NOT CHAR

PANHARD

Automobile Cylinder OIL



GEORGE A. HAWS

Manufacturer of

Automobile Oils & Greases

73 PINE STREET NEW YORK

TRADE "Nox-All" MARK

Corn Hooks.

Code Apatonar. — Per Dozen

No. 10—Cast Steel Blade, Polished, ... $3.00

One Dozen in a Bundle: Weight, 9 lbs. Per Dozen

Corn Knives.

Code Apathiser. — Per Dozen

No. 5—Bishop's, Cast Steel Blade, Beech Handle, ... $4.00

One Dozen in a Package; Weight, 15 lbs. Per Dozen.

Cane Knives.

Code Apaturcon. — Per Dozen

No. 2—Disston's, Cast Steel Blade, Beech Handle, ... $10.00

One Dozen in a Package; Weight, 20 lbs. Per Dozen.

Machetes.

Code Apatusca. — Per Dozen

No. 15—Collins', 18 In. Cast Steel Blade, Horn Handle, ... $15 00

One Dozen in a Package; Weight, 26 lbs. Per Dozen

Code Aparocur — Per Dozen

No. 23—Disston's, 22 In. Cast Steel Blade, Beech Handle, ... $12.00

One Dozen in a Package; Weight, 20 lbs. Per Dozen.

Beet Knives.

Code Apcares. — Per Dozen

No. 2000—Standard, 10 In., Best Cast Steel Blade, Beech Handle, ... $6.00

One Dozen in a Box; Weight, 6¼ lbs. Per Dozen.

Code Apechtigue — Per Dozen

No. 1900—Pacific, 12 In., Extra Cast Steel Blade, Beech Handle, ... $9.00

One Dozen in a Box; Weight, 7¼ lbs. Per Dozen.

Ice Balances.

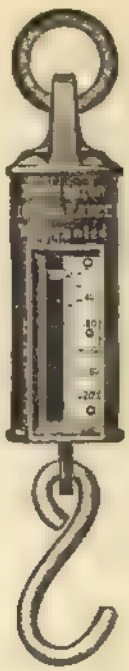
Code Cataractis. Per Dozen

No. 1155—German Crab, Weighs 300 lbs., ... $9.00

Weight, 18 lbs. Per Dozen

Quarter Dozen In a Box

BAKER & HAMILTON



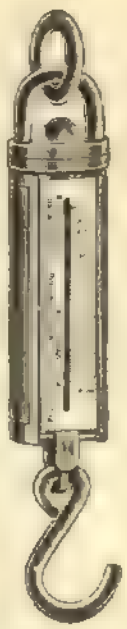
Excelsior, with Hook.

Code Catarlac Each

No. 302—Weighs 200 lbs. by 5 lbs., . $4.00

Weight, 4 lbs. Each.

One in a Box.



Pelouze, Steel King, with Hook.

Code Catarian. Each

No. 300—Weighs 300 lbs. by 5 lbs., . $5.00

Weight, 5 lbs. Each

One in a Box.

Ice Balances.

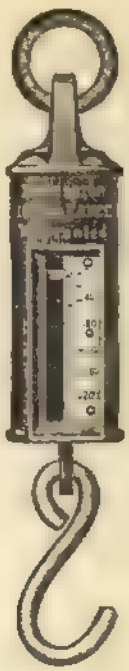
Code Cataractis. Per Dozen

No. 1155—German Crab, Weighs 300 lbs., ... $9.00

Weight, 18 lbs. Per Dozen

Quarter Dozen In a Box

BAKER & HAMILTON



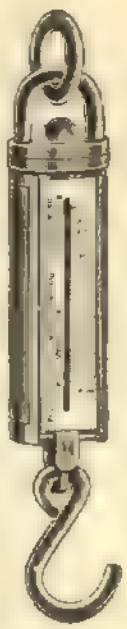
Excelsior, with Hook.

Code Catarlac Each

No. 302—Weighs 200 lbs. by 5 lbs., . $4.00

Weight, 4 lbs. Each.

One in a Box.



Pelouze, Steel King, with Hook.

Code Catarian. Each

No. 300—Weighs 300 lbs. by 5 lbs., . $5.00

Weight, 5 lbs. Each

One in a Box.

BADGES.

MADE OF GERMAN SILVER, NICKEL PLATED.

List Prices. Price Each.

No. 5581. $5.00

No. 5582. $2.00

No. 5583. $1.50

No. 5584. $3.00

No. 5585. $3.00

No. 5589. $1.50

No. 5586. $1.00

No. 5587. $1.50

No. 5588. $1.00

SPECIAL BADGES
MADE
TO ORDER.

No. 5590. $1.00

No. 5591. $1.50

No. 5592. $1.00

No. 5593. $1.50

No. 5594. $2.00

No. 5595. $1.50

No. 5596. $2.50

No. 5597. $1.50

FIREMAN BADGES.

MADE OF GERMAN SILVER, NICKEL PLATED.

Special Price in Quantities of a Dozen or More.

List Price. Badges Only.

No. 5598. Each, $6 00

No 5599. Each, $5.00

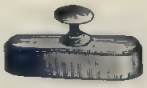
No. 5600. Each, $5 00

No. 5601. Each, $5 00

No. 5602. Each, $3.00

No. 5603. Each, $3.00

No. 5604. Each, $4.00

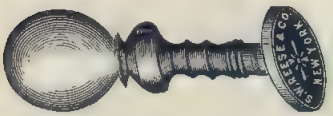


Jas. C. Oram.

POCKET STAMP WITH NAME.
No. 5605. Each, $0.50

POCKET STAMP WITH NAME
No 5606 Each, $0 75

WAX SEALS.



WAX SEAL.

Seals are made to your order and can be furnished in any size and with any lettering desired. We illustrate only the three most desirable sizes

No. 5607. Each, $1.25

No 5608. Each, $1.00

No. 5609. Each, $1 25

THE NATIONAL RECORD OF SALES.

DATE WHEN SOLD	PURCHASERS NAME	No. of Movement	No. of Case	NAME OF MOVEMENT.	Material of Case: Gold	Silver	Other Metal	Style of Case: Hunting	Open Face	Other Style	AMOUNT OF SALE $

No 5610. The National Sales Record. 200 Pages. List Price per Book. Price $0 60

No. 5611. J. H. Waggoner Monogram Book. 32 text work for engraver. A free set of instruction book. Contains 17 pages of lettering in Old English, Roman, Script, etc. Price $ 50

No 5612. Boyce Monogram Book. Latest edition, contains over 2 hundred designs arranged in a practical order. Price 75

No 5613. No 1 design and Text Book. Price 50

NOTICE. Badges Only are List Price

Laib & 771 Louisville Ky

TORCHES.

VAPOR.

FIG. 2091.
No. 100.

KEROSENE.

FIG. 2092.
No. 101.

VAPOR.

FIG. 2093.
No. 102.

GIANT VAPOR.

FIG. 2094.
No. 104.

Vapor, Kerosene and Giant Vapor Torches.

Number	100 and 101	102 and 104
Price.....per dozen	24.00	42.00

FOR GASOLINE OR ALCOHOL, WITH BLOW TUBE.

FIG. 2095.
No. 12.

GASOLINE OR KEROSENE.

FIG. 2096.
No. 22.

Number	12	22
Diameter.....inches	1/4	1 1/4
Height.....inches	6	6 1/2
Price.....each	1.50	1.50

THE BUCKEYE LIGHT.

FIG. 2097.

Number.	Candle Power.	Oil Consumed, Per Hour, Gallons.	Tank, Inches.	Price, Each.	Price, Extra Burner, Each.	Price, Masting Arrangement to Elevate Light 9 to 12 Feet, Each.	Price, Carriages, Each.	Price, Tripod Attachment With 10 Feet of Hose and Couplings, Each.
1	1000	½	10x16	55.00	8.00	.....	.....	16.00
2	1000 to 1500	¾	16x22	75.00	9.00	.....	.....	16.00
3	2000 to 2500	1¼	18x27	100.00	12.50	18.00	16.50	16.00
5	4000	1¾	18x27	110.00	20.00	20.00	.....	16.00
*A	4000	.....	18x27	125.00	.....	.....	.....	16.00
Jumbo	5000	2	24x32	175.00	25.00	25.00	25.00	16.00
*B	8000	.....	24x32	175.00	25.00	.....	.....	16.00

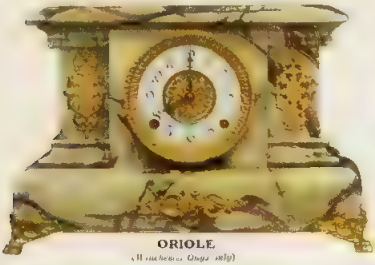
*A and B are double lights.

Masting arrangement with pole 15 feet long fitted to raise and lower burner, complete with all necessary fittings and 10 feet of hose 35.00. Price for same outfit for A and B lights 42.00.

A portable light having the power within itself, generated from kerosene oil forced by compressed air to a burner which is heated before the oil is turned on.

WM. L. GILBERT CLOCK COMPANY'S

HIGH GRADE ENAMELED BLACK AND MARBLEIZED WOOD CLOCKS



ORIOLE

(Illustration shows Onyx only)

Height, 11 inches. Width, 13 inches. 5½-inch Dial.
Rococo Sash. Gilt Ornaments.
White, Cream or Gilt Perforated Dial . . . . List each, $7.60

ROYAL

(Illustration shows Black Enamel Finish with Green Marbleized Columns)

Height, 10½ inches. Width, 13½ inches. 5½-inch Dial
Rococo Sash. Gilt Ornaments, Gilt Engraved Scotch Granite or Winchester Onyx Marbleized Moulding
White, Cream or Gilt Perforated Dial. List each, $7.60

LONDON

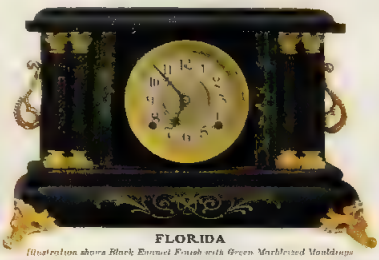
Illustration shows Black Enamel Finish and Onyx Marble Columns

Height, 11 inches. Width, 17½ inches. 5½ inch Dial.
Rococo Sash, Gilt Ornaments, Caps and Bases, Italian, Scotch Granite or Winchester Onyx Marbleized Moulding and Columns.
White, Cream or Gilt Perforated Dial. List each, $8.35.

NOAH

Illustration shows Black Enamel and Red Marbleized Finish

Height, 12½ inches. Width, 19 inches. 5½-inch Dial
Rococo Sash, Marbleized Columns and Sides. Gilt Ornaments.
White, Cream or Gilt Perforated Dial . List each, $8.35



FLORIDA

Illustration shows Black Enamel Finish with Green Marbleized Mouldings

Height, 11½ inches. Width, 17½ inches 5½-inch Dial
Rococo Sash. Gilt Ornaments.
White, Cream or Gilt Perforated Dial List each, $8.35

Above are all fitted with Eight Day Movements, striking the hours on Cathedral Gong and the half hours on cup bell.

GILBERT CLOCKS.

ANSONIA MARCHIONESS.
Eight Day. Half Hour Gong Strike
Height 14 inches. Width 8½ inches
Porcelain Vases, Decorated in Colors, Arabic or Roman
Enamel dial, Ormolu Scroll and Brass Fittings, Beveled Plate
Glass Front, Side and Back
List, each $47 50

ANSONIA MARQUIS.
Eight Day. Half Hour Gong Strike
Height, Dog Iron Width 7½ inches
Porcelain Vases, Decorated in Colors, Dial 4½ inches, Arabic or Roman
Polished Brass, Ilex, Gold or Dark Bronze Trimmings, Beveled Plate
Glass Front, Sides and Back
List, each $45 00

HUNTRESS SWING. $19.50
Eight Day. Time
Height, 25 inches

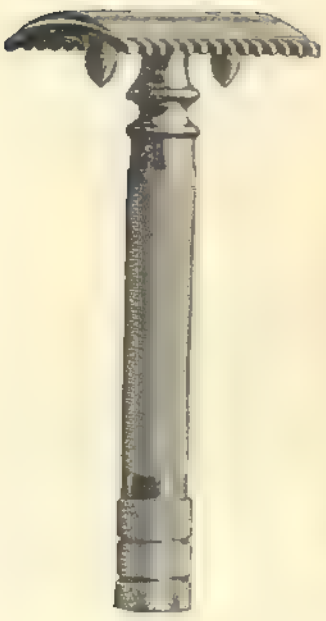
HUNTER BALL SWING.
Or with the Father Figure
Eight Day. Time
Dial 4½ inches, Height 25 inches
Finished in New Art or Statue Bronze
List, each $32 00
Ball Finished in Blue Enamel

BORDEAUX.
Eight Day. Strike tone. Half hour Gong Rod
Height 14 inches. Width 9 inches
Statuary Porcelain Dial Ass'ts Decorations
French Plate Crystal Glass Case, Rich Ormolu
Gilt Mountings. Solid Round Base
List, each $52 00

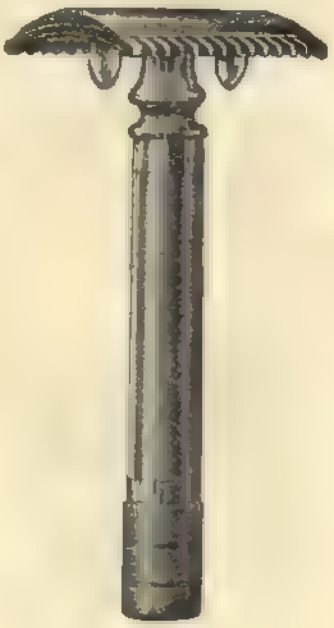
Safety Razors.

Gillette's.

No Stropping; No Honing.



Showing Handle and Holder Detached



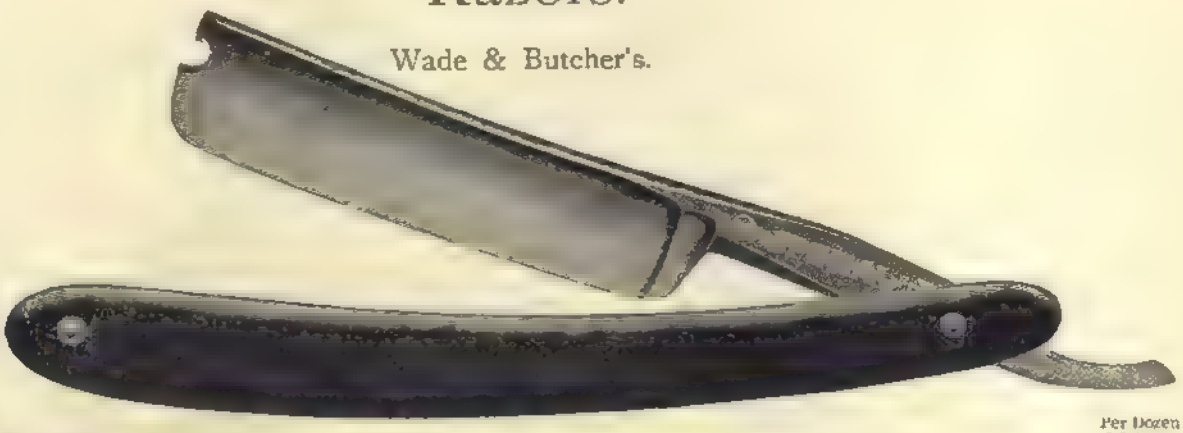
	Each.
Gillette's Patent Safety Razor, Triple Plate Silver, with 12 Blades in Velvet Lined Case, . .	$ 8.50
Gillette's Patent Safety Razor, Triple Plate Gold with 12 Blades in Velvet Lined Case, .	20.00
Gillette's Patent Razor Blades only, for above, in Sets of 12 . . .	3.00

The Gillette's Safety Razor is the Most Perfect and Simple Razor ever Made. Is Instantly Adjusted for Close or Light Shaving. Cleaned as easily as a Silver Tea Spoon

It is the only Safety Razor that does not require Stropping or Honing. The Secret is in the Wafer Blades. These are as Thin as Paper, **Double Edged,** and Tempered so Hard they must be Ground with Diamond Dust. Each Edge of Every Blade will give at least 10 Velvet Shaves, **"20 Shaves to a Blade"** 12 Double Blades to each Set Assuring you 240 Shaves, without Stropping or Honing

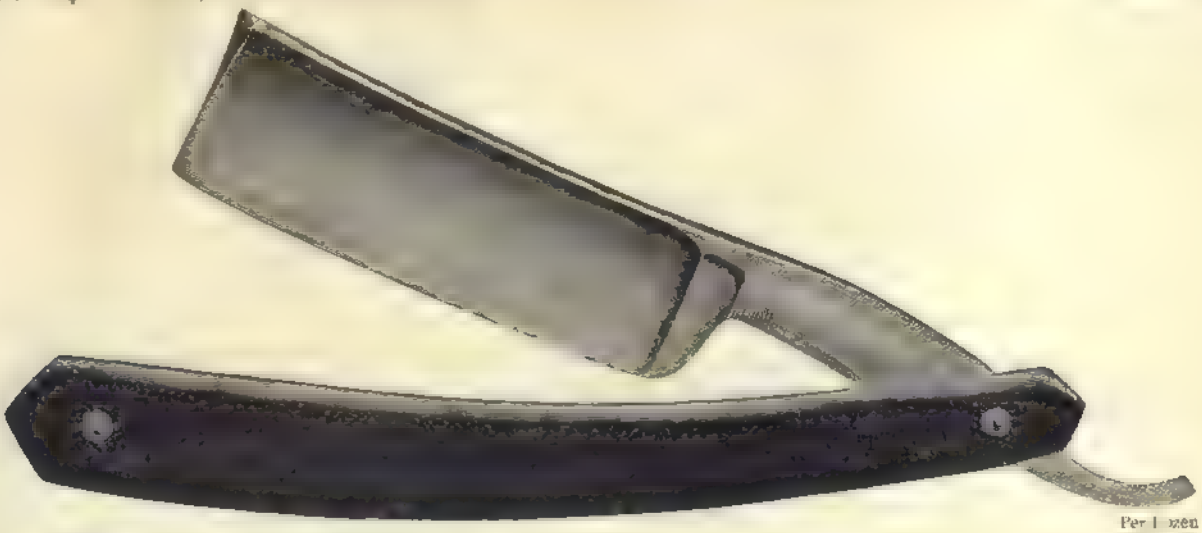
Razors.

Wade & Butcher's.



	Per Dozen
No. 13—½ In. Blade, Black Rubber Handle,	$24.00
No. 13—⅝ In. Blade, Black Rubber Handle,	25.00

	Per Dozen.
No. 1456—¾ In. Blade, Black Rubber Handle,	$24.00



	Per Dozen
No. 12—⅝ In. Blade, Black Rubber Handle,	$24.00
No. 12—¾ In. Blade, Black Rubber Handle,	26 00
No. 12—⅞ In. Blade, Black Rubber Handle,	28.00
No. 12—1 In. Blade, Black Rubber Handle,	32.00

Half Dozen in a Box.

GLASCOCK WOOD SPLITTING MACHINE.

FIG. 2631

With this machine wood of any degree of toughness, and any length up to 24 inches can be split as fine or as coarse as desired. The frames are solid cast iron, very heavy and well proportioned, bolted together with 1¼-inch bolts with heavy hexagon nuts at both ends. The frame is cross braced on both sides with two iron bars bolted to frames and at their intersection.

The bearings for the driving shaft are very strong, as the constant striking of the axe into the wood is very trying on these boxes

The axe is made of best tool steel. It has a vertical motion and should make 125 to 150 strokes per minute. The table is easily adjusted by a screw, to the varied lengths of wood. The table has corrugated top to keep wood from splitting.

The capacity of machine depends largely on the kind of wood, and the operator, though one party split twenty cords per day with a double splitter

Only one horse power is required to drive the double splitter. The driving pulley is 36x6 in. Double Belt, and should make 125 to 150 revolutions per minute.

The floor space required for either single or double splitter is 3½x9½ feet, and height from floor to center of driving shaft is 6 ft. 6 in.

The weight of double splitter is approximately 1,600 pounds and the single splitter 1,500 pounds

The single splitter is identically the same in construction as the double splitter except that the single splitter carries but one axe.

The single splitter can be converted into double splitter at any time by attaching the necessary parts.

Price of Double Splitter . . Price of Single Splitter.....

EDGING GRINDERS, OR HOG.

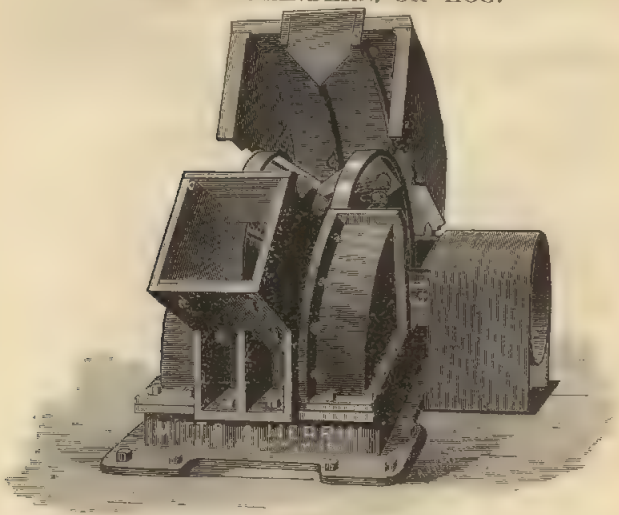


FIG. 2880.

It cuts any kind of wood into coarse or fine chips suitable to be handled by a chain conveyor or blower. In SAWMILLS it cuts slabs, edgings, trimmer ends and bark. In SHINGLE MILLS it grinds blocks, spalls, waste shingles, split or cut sawdust. In PLANING MILLS it grinds blocks, long edgings and ends of boards. In EXTRACT WORKS it cuts round logs, cordwood, limbs and bark. It cuts logs of oak, chestnut, or logwood, or it cuts the thinnest, toughest edgings of pine, elm, or cypress, and the most stringy, fibrous bark or shavings of pine, cedar or cypress.

No. 1 GRINDER.

Wheel, 20 in. diameter. 6 knives. Spout, 6 in. wide 8 in. high. Frame, 23x31 in. Weight, 1,200 lbs. Pulley, 10 in. diam., 9 in. face. Speed, 1,200.

No. 2 GRINDER.

Wheel 26 in. diameter. 12 knives. Spout, 12 in. wide, 10 in. high. Frame, 28x40 in. Weight, 2,400 lbs. Pulley, 12 in. diam., 11 in. face. Speed, 1,100.

No. 3 GRINDER.

Wheel, 36 in. diameter. 18 knives. Spout, 18 in. wide, 10 inches high. Frame, 34x40 in. Weight, 2,800 lbs. Pulley, 14 in. diam., 11 in. face. Speed, 1,000.

No. 4 GRINDER RIGHT HAND.

Wheel, 38 in. diameter. 16 in. wide. Spout, 12 in. wide 12 in. high. Frame 4½ x 3 ft. Pulley, 15 in. diam., 13 in. face. Speed 1,000. Weight, 3,000 lbs. No. 4A is like the No. 4 except the shaft is extended (not exceeding 11 ft.) and an outside bearing furnished. No. 4B is the same except that it has a pulley on each side. No. 5, 5A and 5B are like the above excepting the spout, which is 13 in. wide and 20 in. high.

No. 6, RIGHT HAND GRINDER.

Cylinder, 48 in. diameter 24 in. wide; weight, 3,500 lbs. It has 12 knives, 10 in. wide ⅝ of an inch thick. The spout is 6 in. wide, 36 in. high. Frame, 5x6 feet. Pulley, 25 in. diameter, 19 in. face. Speed, 700. Total weight, 8,400 lbs. Capacity, 3 to 6 cords (128 cubic feet per hour. This machine is also largely used to cut up oak and chestnut wood for extract chips.

No. 7, LEFT HAND GRINDER.

Cylinder, 30 in. diameter, 15 in. wide. Spout 9x9 in. Frame, 31x46 in. Pulley, 15 in. diam., 11 in. face. Speed, 1,000 to 1,200. Weight, 2,400 lbs.

No. 8 GRINDER.

Cylinder, 7 in. long. Spout, 6 in. wide 8 in. high. Frame, 23x 34 in. Pulley, 10 in. diam., 9 in. face. Speed, 1,200 to 1,800. Weight, 1,300 lbs.

No. 9 GRINDER.

Cylinder, 11 in. long. Spout, 13 in. wide. Frame, 3x3 ft. Pulley, 12 to 15 in. diam., 9 to 13 in face. Speed, 1,200 to 1,800. Weight, 2,400 lbs.

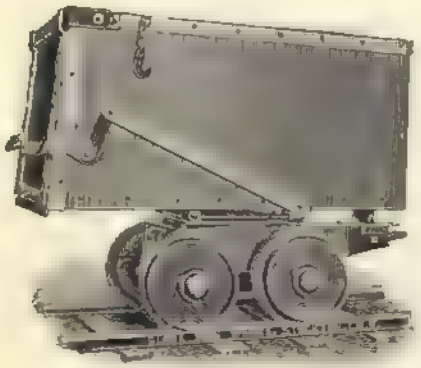
No. 10 GRINDER.

Cylinder, 20 in. long. Spout, 19 in. wide. Frame 3½x3 ft. Pulley, 12 to 18 in. diam., 9 to 13 in face. Speed, 1,200 to 1,800. Weight, 2,900 lbs.

No. 12 GRINDER LEFT HAND.

Cylinder, 24 in. long. Spout, 23 in. wide. Frame, 3 ft. 10 in. by 3 ft. Pulley, 14 to 20 in. diam., 9 to 13 in. face. Speed, 1,200 to 1,800. Weight, 3,200 lbs.

Ore Cars.



Standard.

No.	Code	Each	Width of Body, Inches.	Length of Body, Inches.	Height of Body, Inches.	Capacity, Cubic Feet.	Weight Each, Lbs.	Diameter of Wheels, Inches.	Gauge of Track, Inches.
14A	Cimeranno.	$46 00	24	44	21	13	460	10	18
17A	Cimiate.	53.00	24	48	24	16	510	10	18
Light Ton.	Cimicaire.	67.00	30	48	24	20	720	12	18

Standard Cars are constructed entirely of Steel, Wrought Iron and Malleable Castings, with the exception of the wheels, which are the best quality of Cast Iron Wheels, with chilled treads and flanges.

Standard Cars weigh less than other makes, owing to the construction and use of Malleable Castings instead of Grey Iron Castings.

Car Wheels and Axles.

Plain.

Standard Gauge, 18 Inches.

Self-Oiling.

Size of Wheel, Inches.	Code.	Size of Bore, Inches.	Weight Per Set, Lbs.	Per Set.	Size of Wheel, Inches.	Code.	Size of Core, Inches.	Weight Per Set, Lbs.	Per Set.
8	Cimnosma.	1⅛	116	$10.00	**10**	Cimoliorum.	1⅜	148	$13.00
10	Cimitarra.	1⅜	136	11.00	**12**	Cimolium.	1⅜	204	16.00
12	Cimmerian.	1⅜	196	14.00					

Note.—A Set Consists of Four Wheels and Two Axles.

If these Wheels are desired over 18 In. wide and not Exceeding 24 In. Wide add 50 cents per set. (Two Axles.)

Ore Buckets.

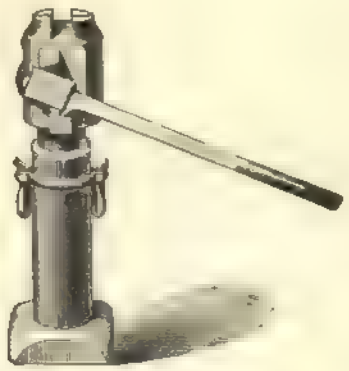
Windlass.

Standard.

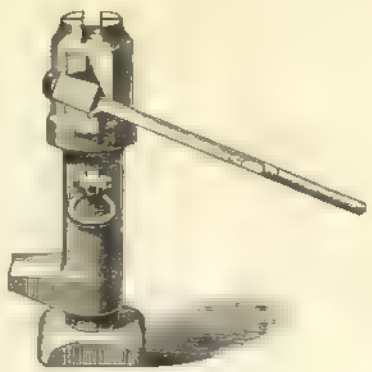
Nos.	Code	Inside Diam. Inches	Depth, Inches	Capacity, lbs	Wt. Each, lbs.	Each.
1	Cinanche	18	16	165	35	$15.00
2	Cinara.	18	16	200	40	18.00

Nos.	Code.	Diam. Inches.	Depth Inches	Capacity, lbs	Wt. Each, lbs	Each
10	[illegible]	[illegible]	24	[illegible]	[illegible]	$20 00
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Hydraulic Jacks



Plain Base.



With Claw.

Capacity, Tons	Code.	Base, Inches	Total Height Down, Inches	Size of Bottom Inches	Wt. Each, lbs	Each.
4	Cincinno.	12	25	3½	41	$50 00
7	Cincinnus.	12	25	4½	50	56 00
10	Cincischio.	12	25	5½	75	64 00
15	Cincle.	12	25	5½	100	80.00
20	Cinclides.	12	26	6½	121	98 00

Capacity, Tons	Code	Base, Inches	Total Height Down, Inches	Size of Bottom Inches	Wt. Each, lbs	Each
4	Cinctionem	12	25	[illegible]	[illegible]	$ 58 00
7	Cinctionis	12	25	[illegible]	[illegible]	68 00
10	Cinctorium	12	25	[illegible]	[illegible]	80.00
15	[illegible]	12	25½	6½	[illegible]	120 00
20	[illegible]	12	25½	6	185	160 00

GLOBE SAFETY VALVES.

IRON BODY, BRASS MOUNTED

FIG. 364.

FIG. 365.

FIG. 364.

Size Inches	¼	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price Each	3 50	4 00	5 00	5 50	7 80	13 25	17 25	23 00	28 75	34 50	40 25	46 00	57 50	83 50	132 00	

FIG. 365.

Size Inches	¼	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price Each			5 50	7 75	7 75	10 25	10 00	21 50	27 50	44 00	49 50		88 00	65 00	110 00	111 00
Dia. of Flanges							6	7	7½	8½	9	9½	10	11	12½	13½

ANGLE SAFETY VALVES.

IRON BODY, BRASS MOUNTED

FIG. 366.

FIG. 367.

FIG. 366.

Size Inches	¼	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price Each	3 50	4 00	5 00	5 50	7 80	13 25	17 25	23 00	28 75	34 50	40 25	46 00	57 50	83 50	132 00	

FIG 367

Size Inches	¼	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price Each			5 50	6 50	7 75	10 25	10 00	21 50	27 50	44 00	49 50		88 00	65 00	110 00	110 00
Dia. of Flanges							6	7	7½	8½	9	9½	10	11	12½	13½

FIG 368.

LOW PRESSURE SAFETY VALVES.

FOR OIL STILLS — IRON BODY, BRASS MOUNTED.

SCREWED OR FLANGED

Size Inches	4	6	8	10
Price, Screwed or Flanged Each.	25 00	44 00	80 00	120 00
Diameter of Flanges Inches	9	11	13½	16

Base Ball Goods

FIELDERS' GLOVES

No. 8X

No. 6X

Nos. 7 6

Nos. 4X 4

Nos. 1A 1

No.		Each
8	—Smoked Indian Buckskin, Full Felt Padded, Thumb Web, Deep Flexible Pocket	$1.00
6X	—Brown Napa Tan Kid Leather, Lined throughout With Good Grade Felt, Connecting Thumb Web, Improved Pocket, Full size,	1.00
7	—Drab Asbestos Buck, Boys Size Felt Padded and Leather Lined, Deep Pocket and Connecting Thumb Web,	.75
6	—Smoked Indian Buck, Full Size, Full Felt Lining, Connecting Thumb Web,	.75
4X	-Black Kid Stock, Visible Heel Ridge and Thumb Web.	$0 50
4	—Drab Asbestos Buck, Full to Size, Connecting Thumb Web, Correctly Padded, Natural Deep Pocket,	.50
1A	—The "Boys Special," Drab Colored Leather Connecting Thumb Web, has the best of Felt Lining and Deep Pocket,	.25
1	—Boys Size, Olive Colored Leather, Felt Padding and Thumb Web,	.25

CATCHER'S MITTS

Nos. 98, 96, 95

Mitts Nos. 98, 96 and 95 are made of the choicest selection of calfskin. Only the best and firmest portions of the hides are used. The palm and edge are made in one piece, which increases the wearing qualities and prevents the possibility of ripping. Have a hand-sewed and moulded asbestos felt padding arranged in such a manner as to produce a natural deep pocket, which requires no breaking in. Made with the edge full laced, so that the padding can be adjusted to any desired form. Double sewed throughout with linen thread. Strap and buckle at the wrist with **improved patent buckle protector.** Made and finished in the finest possible manner.

No.		Each
98	Black Calfskin,	$7 00
96	Brown Calfskin	7 00
95	Tan Calfskin,	6 00

Nos. 91 and 84

Showing full laced edge and New Buckle protector

No.		Each
91	—Modeled, Selected Cordovan Leather, Professional Pattern, Palm and Edge in one Piece, Full Laced Edge, Hand Formed Felt Pad,	$5.00
84	—League Pattern, Finest California Smoked Horsehide, Deep Pocket, Internal Edge Stiffener, Full Laced Edge, Highest Grade Felt Padding,	$4.00

Base Ball Goods

CATCHER'S MITTS

Nos. 85X, 85

Nos. 77, 76X

Nos. 80X, 79, 78

No. 75

No		Each
85X	—Professional Size Model, Front of Selected Black Calfskin, Balance of Heavy Kid Leather, Well Padded, Full Laced, Patent Thumb Lace, Strap and Buckle at Wrist,	$3.00
85	—League Pattern, Front of Olive Calfskin, Balance of Mitt and Trimmings of selected Sage Green Leather, Patent Edge Lacing for Re-Padding, Patent Thumb Lace and Deep Pocket, Strap and Buckle at Wrist,	2.50
***80X**	-Tan Colored Horsehide Palm, Balance of Heavy Finest Quality Smoked Sheepskin, Full Laced Edge for Re-Padding, Internal Finger Protector, Double Sewed Throughout, Strap and Buckle at Wrist,	2.00
***79**	—Front of Drab Asbestos Buck, Balance of Mitt of Sage Green Leather, Has all the Latest Improvements and is Double Sewed Throughout, Full Laced Edge for Re-Padding,	1.50
78	—Black Cordovan Leather, with Large Size Double Palm Pad, Patent Thumb Lace and Deep Pocket, Full Laced Edge, Strap and Buckle at Wrist,	$1.50
77	—Front and Back of Smoked Indian Buck Balance of Trimmings of Tan Colored Leather, Patent Thumb Lace, Full Laced Edge for Adjusting Padding, Strap and Buckle at Wrist,	1.25
***76X**	—Heavy Drab Asbestos Buck Palm and Back, Trimmings of Benton Tan Kid, Deep Pocket, Full Laced Edge for Re-Padding, Buckle and Strap at Wrist,	1.00
75	—Black Cordovan Leather, Full Laced, Inside Palm Pad, Patent Laced Thumb, Deep Pocket, Strap and Buckle at Wrist,	1.00

Nos. 73X, 72

Nos. 71, 67

No		Each
73X	—Heavy Wine Colored Stock, Patent Thumb Lace, Deep Pocket, Strap and Buckle at Wrist,	$0.75
72	—Large Size Mitt, Drab Horsehide Palm and Fingers, Wine Colored Strip, Heavy Canvas Back, Edge Bound all Around, Laced Thumb, Deep Pocket,	.50
71	—Youth's Size, Made Entirely of Drab Buck Finished Horsehide, with Wine Colored Strip, Well Padded and Strongly Sewed,	$0.50
67	—A Liberal Size Youth's Mitt, Drab Buck Finished Horsehide Palm and Fingers, Wine Colored Strip and Heavy Canvas Back, Improved Deep Pocket,	.25

*Carried in Stock for Right Hand.

NEW LINE OF ADVANCED "HIGH DUTY" SHAPERS.

24-INCH "DOUBLE TRIPLE QUICK" STROKE EXTENSION BASE SHAPER.

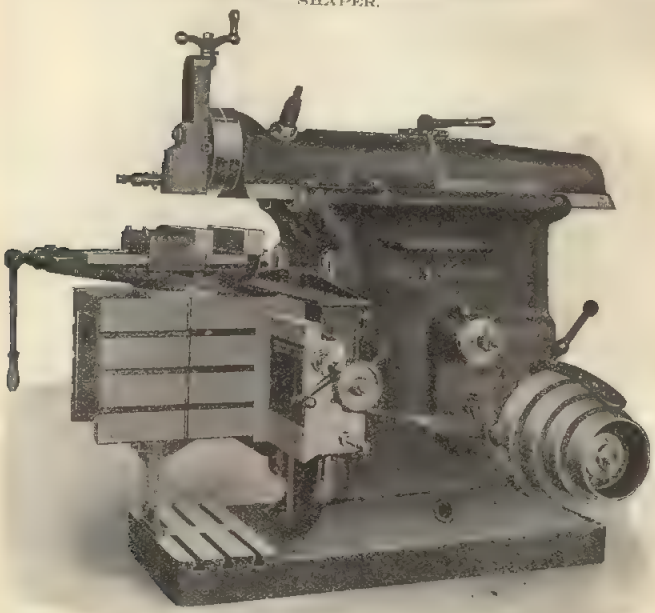


FIG 2423

vided with T slots to which work can be bolted. AUTOMATIC CROSSFEED CONNECTING ROD has screw for loosening or tightening of set screw to adjust. TOOL HEAD is graduated and swivels. Rests on ratchet collar. Can be furnished with automatic (weight, vertical feed at extra price. VISE is of Perfected Steel Substitution construction; jaws steel faced. Pair loose jaws for taper work also furnished. TABLE is of large dimensions and provided with T slots. All shafts and screws are of special machinery steel, and all gearing cut from the solid. COUNTERSHAFT, with brake to stop quickly, and all necessary wrenches are furnished.

Size	*14 Inch.	16 Inch.	20 Inch.	24 Inch.	34 Inch
Planes wide	19 in.	21 in.	24 in.	30 in.	38 in.
Takes between ram and table	18½ "	20¼ "	20¼ "	19½ "	21½ "
Vise jaws	10 x 2¼	12 x 2½	12 x 2¼	14 x 3	19 x 5
Vise opens	10 in.	14½ in.	14½ in.	16 in.	21 in
Keyseating capacity	2½ "	8 "	3½ "	4 "	4 "
Counter pulleys	12 x 3¼	12 x 4	12 x 4	14 x 4½	16 x 4½
R. P. M.	260	280	300	320	200
Net weight, lbs.	1900	2770	3256	425	7856

*14-inch size does not have Extension Base and Table Support feature.

Electric Motor Drive — *Any of these machines can be fitted with direct connected electric motor drive. State voltage and current.*

20-INCH x 60-INCH HENDEY TRAVERSE SHAPER.

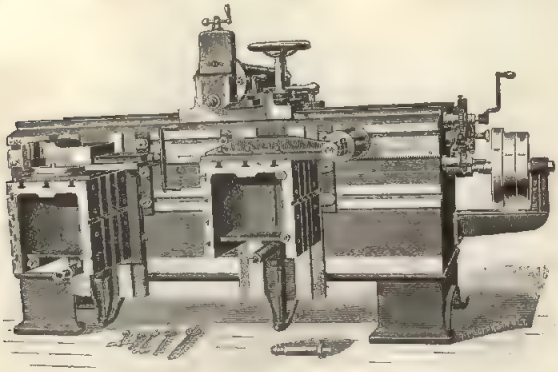


FIG 2424.

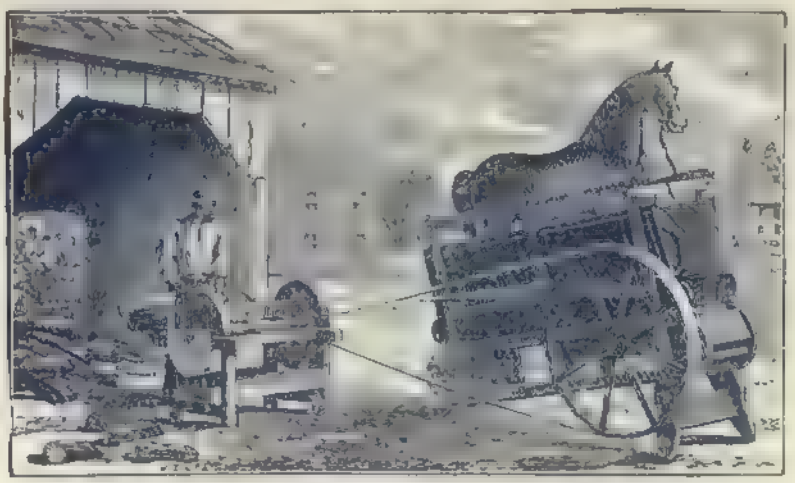
This shaper is designed for railroad and other machine work. The stroke can be set to any length while the machine is in motion, thereby making a saving in time over a crank shaper. The saddle has a traverse the entire length of bed, or 60 inches. The machine has longitudinal power feed operated from the pulley end of the bed. The head has power down feed of 6 inches. Circular arbor has power feed also. The hand wheel on top of saddle is for setting the tool to the work by hand. The tables are both made in box form, and one is fitted with our patent adjustment for planing taper work. The tables are easily taken off to fasten large work to the bed, if desired. The bearings on this machine are all made of hard bronze, and shafts and screws are of steel. The vise used on this Shaper is the No. 2 improved.

	SOLID	ADJUSTABLE.
Size of Tables,	15¾ in. x 17 in.	15¼ in. x 17 in.
Tool Post takes Tool,		⅝ " x 1¼ "
Width of Slots in Table,		¾ "
Size of Tight and Loose Pulleys on Countershaft,		12 " x 3½ "
Speed of Countershaft,		295 revolutions.
Weight of Machine,		6,375 lbs.
" of Boxing for 20-inch x 60-inch Traverse Shaper,		1,325 "
Dimensions of case,	9' 8" long, 3' 11¾" broad,	5' 3½" deep.

Down feed graduated to thousandths.

NOTE—Friction Clutch should be kept oiled.

GRAY'S HORSE POWERS AND CIRCULAR SAWS.

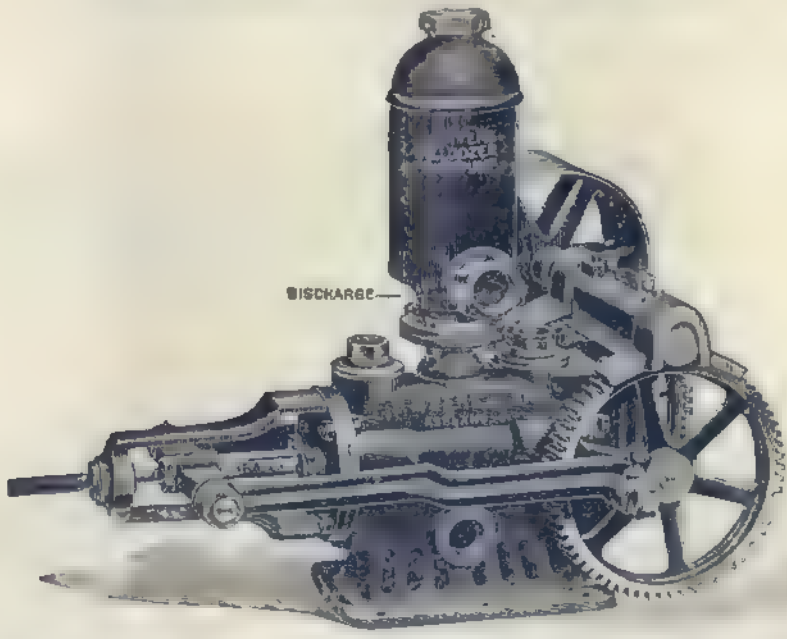


The Gray Horse Powers and Circular Saws are well built, serviceable machines and are used more extensively in New England than any other make. Complete catalogue mailed on application.

Two Horse Power alone	Mfrs. price, each,	$140.00	Our net price, each,	$133.00
One " " "	" "	90.00	" "	85.50
Speed Governor and Fixtures	" "	10.00	" "	9.50
One Horse Power and 24 inch Circular Saw with belt	" "	143.00	" "	136.00
24 inch Circular Saw Machine only	" "	45.00	" "	42.75
24 " " " " " with extended table	" "	47.00	" "	45.00

Oak Tanned Leather Belting or Rubber Belting at lowest market prices

THE BULLDOZER POWER PUMP.



This pump is specially adapted to meet the requirements for a compact power pump to be operated with a gas or gasoline engine, electric motor or any belt power. Floor space required, 36 inches wide by 42 inches long.

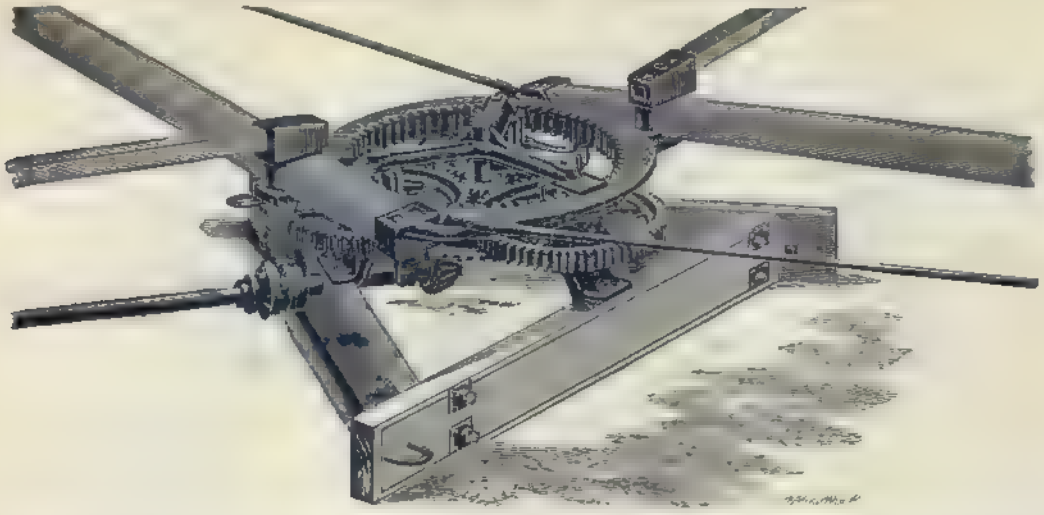
We recommend this pump to do good service under heavy pressure. It is guaranteed to elevate water 125 feet perpendicularly, or an equivalent pressure when properly piped and not restricted; has a capacity of 30 gallons per minute; should be run 30 to 35 revolutions per minute. Each pump is run and tested with water under a pressure of 125 lbs. before leaving our factory.

Its compact construction, great power and wide range of work especially recommend it for general and export trade for the reason that it can be packed in smaller space than any other pump of its capacity known to the trade.

Bulldozer Pump with 3 inch cylinder and 5 inch stroke . Mfrs. price, each, $75.00 Our net price, each, $60.00

Pulleys 24 inch diameter x 4 inch face.

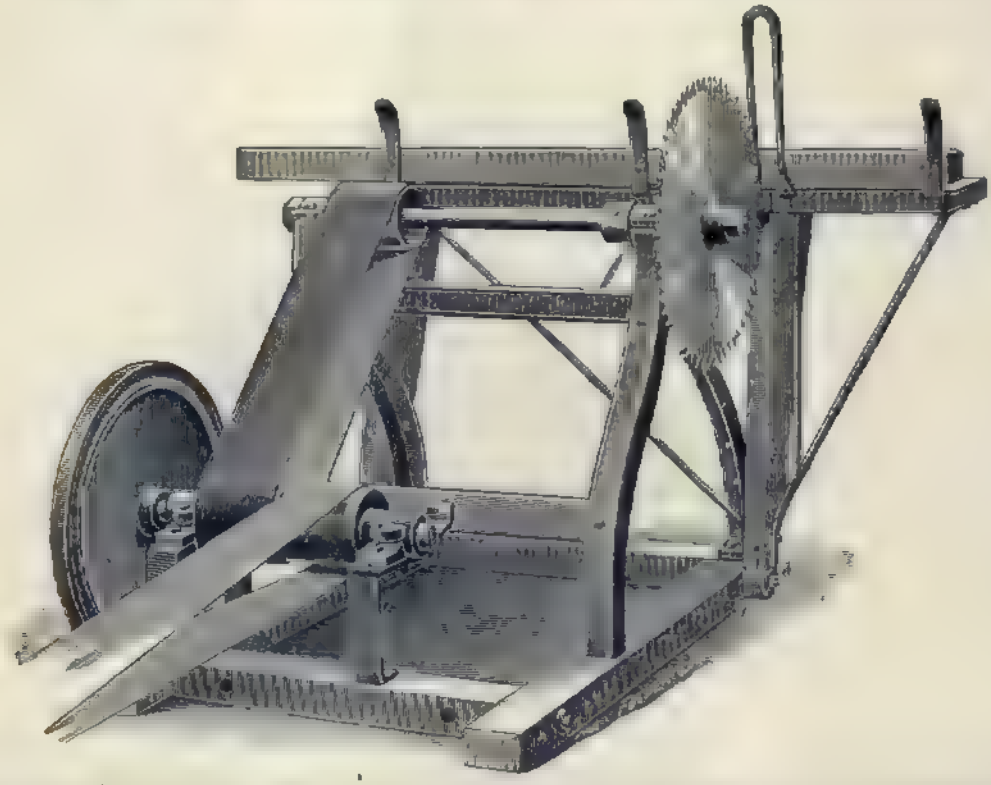
ROSS TRIPLE-GEARED HORSE POWERS.



Pulleys, 15, 18, 20, 24 and 30 in. diameter, 5½ in. face. We furnish our sweep powers with 13 feet of 1 1/16 in. tumbling rod, measured outside the ratchet coupling, with two bearings, and choice of pulleys above. The two horse swings in 28 feet; the four or six horse in 29 feet. Speed of tumbling rod, 175 revolutions per minute, figured on a basis of three rounds of the horse per minute.

	Mfrs price.	Our net price.
Two Horse, weight 650 pounds, two sweeps, two draw rods, and two lead rods	Each, $50.00	Each, $45.00
Four " " 1150 " " " " " " " " " "	" 65.00	" 58.50
Six " " 1400 " three " three " " " three " "	" 80.00	" 72.00
Spur Gear Jack, with pulley	" 15.00	" 12.00
Bevel " " " "	" 15.00	" 12.00

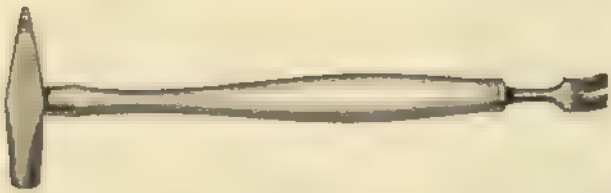
ROSS IRON FRAME SWING TABLE POLE SAW.

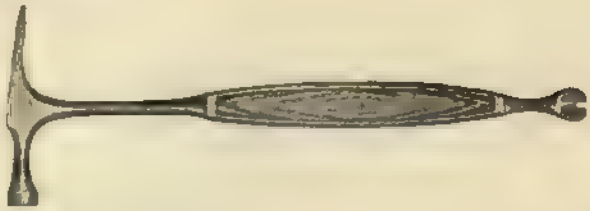


The saws are fully warranted. This machine is first-class in every respect. Power required, two to six horse sweep, two to three horse tread. Saws should run 900 revolutions per minute. Weight, Pole Saw, 475 lbs.

Swing Table Pole Saw, 22 in. saw	Mfrs. price, each, $37.00	Our net price, $47.00
24 in., 26 in., 28 in. saws furnished, add extra per in.	" 1.00	" " .80

Tack Hammers





No.		Per Doz.
25—Polished, with Claw		$1 25

No.		Per Doz.
4	Malleable Iron Handle, Inlaid, Hardened Face	$3 50

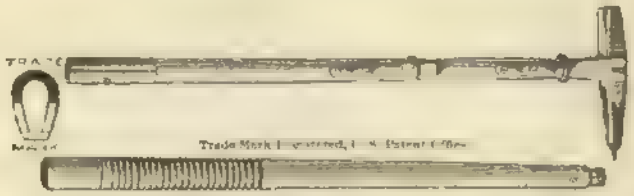
One Dozen in a Box

No.		Per Doz.
2—**Magnetic,** with Claw on the Handle		$2 00

No.		Per Doz.
412	**Robertson's** Magnetic, Cast Steel Head, 12 in. Handle	$9.00

One Dozen in a Box

Bill Posters Hammers



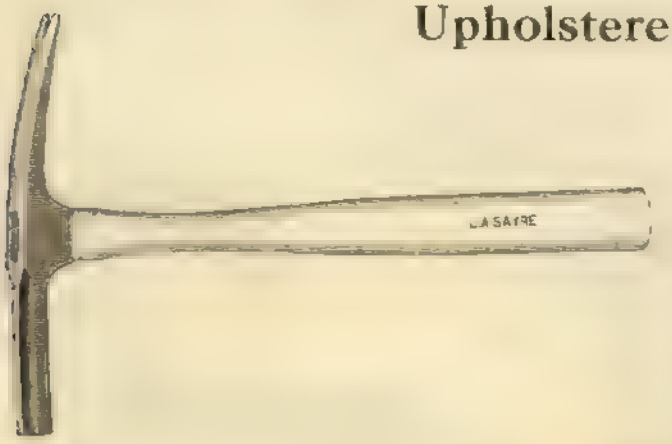
Hammer Head and Handle Trimmings Nickel Plated. Has Spring for holding Card for first Tack. 36 in. Jointed Handles in two 18 in. Sections

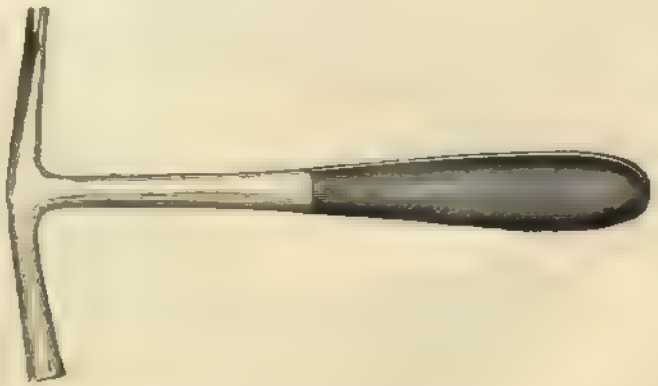
No.		Per Doz.
502—Weight of Head 5 Ounces		$12 00

No.		Per Doz.
802	-Weight of Head 8 Ounces	$48 00

One-Sixth Dozen in a Box

Upholsterers Hammers





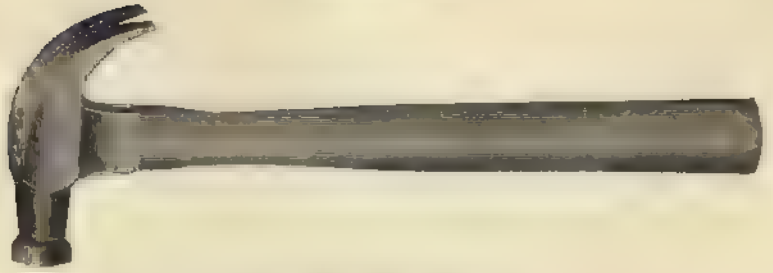
No.		Per Doz.
650	Upholsterers Pattern Tack, Cast Steel, Polished	$4 00

No.		Per Doz.
65—	Upholsterers, Solid Cast Steel Faces Assorted ⅜ to ⅝ in.	$18.00

One-Half Dozen in a Box

Nail Hammers

GARDEN CITY



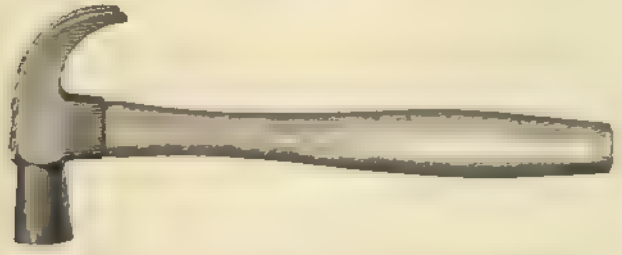
Adze Eye, Bell Face

Drop Forged from Special Grade Steel, Polished, Hickory Handles

No.	111	111½	112	113
Weight, Ounces (not including Handle)	20	16	13	7
Per Dozen	$5.70	5.30	4.90	4.50

One-Half Dozen in a Box

CAST IRON



Cast Iron, Full Polished, Varnished Handle

No.	255
Weight, Ounces	16
Per Dozen	$3.00

One-Half Dozen in a Box

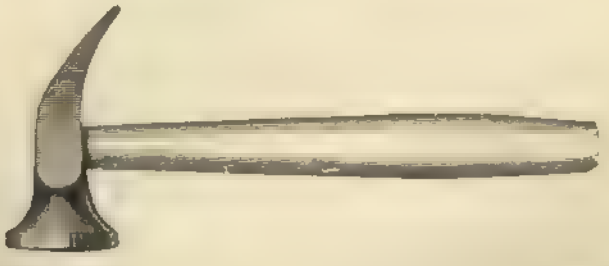
LADIES

Cast Iron, Nickel Plated, Varnished Handle

No.	N260
Weight, Ounces	6
Per Dozen	$2.00

One-Half Dozen in a Box

Shoemakers Hammers



Cast Iron Japanned, Polished Face

No.	035
Weight, Ounces	10
Per Dozen	$3.00

Cast Steel, Polished

No.	1	2
Weight, Ounces	13	15
Per Dozen	$8.50	9.00

One-Half Dozen in a Box

Weights given do not include Handles

Solid Cast Steel Wedges.

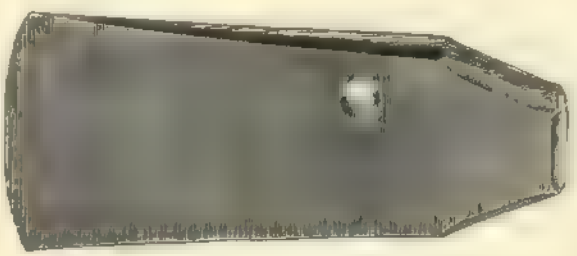
	Code	Per Dozen
No. 25—Harmon, Malleable Iron, Weight 4¾ to 5¼ lbs.,	Abitanis.	$15.00

Malleable Iron Wedge, Hardwood Handle. Is Light, Long and Strong and Adapted to all Work.

	Code	
Extra Hardwood Heads for Harmon Wedges,	Abitagues.	3.00
Extra Wrought Iron Rings for Harmon Wedges,	Abitatori.	3.50

Axe Pattern.
Solid Cast Steel, Oil Finish.

	Code	Per Dozen
No. 1—Eureka, Weight 4 lbs.,	Abitiras.	$8.00



Bolt Pattern.
Solid Cast Steel, Oil Finish.

	Code	Per Pound
No. 10—Weight 5 to 7 lbs.,	Abitoura	$0.30

Cast Iron Post Mauls.

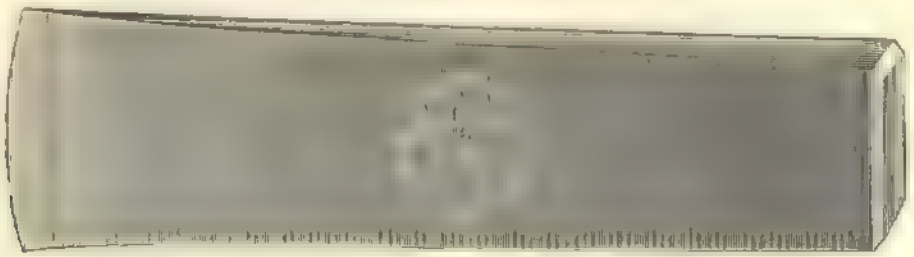
No. 5—Round Face,	Weight Each, lbs.,							14	16
	Code							Abiturl.	Abjagend.
	Per Pound,							$0.10	.10
No. 6—Square Face,	Weight Each, lbs.,	6	8	9	10	11	12	14	16
	Code	Abjugavl.	Abjugem.	Abjugor.	Abjunctac.	Abjunctos.	Abjunges.	Abjunguni.	Abjunxl.
	Per Pound,	$0.10	.10	.10	.10	.10	.10	.10	.10
No. 7—Octagon Face,	Weight Each, lbs.,				8	12	14	16	18
	Code				Abjurable.	Abjurais.	Abjurumus.	Abjurando.	Abjurdo
	Per Pound,				$0.10	.10	.10	.10	.10

Solid Cast Steel Wedges.

Truckee Pattern.

Code Abalogo. Per Pound

No. 5—Defiance, Cast Steel, Oil Finish, Weight 4 to 10 lbs., ... $0.12



Humboldt, Falling Pattern.

Warranted, Extra Cast Steel, Oil Finish.

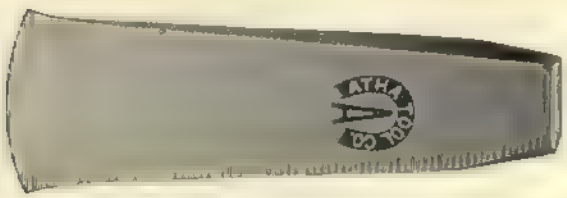
Nos.	**10**	**11**	**12**
Code	Abisag.	Abisares.	Abishalom.
Length, Inches.	14	15	18
Weight Each, lbs.,	10	12	19
Per Pound.	$0.50	.50	.50

Humboldt, Redwood Pattern.

Code Abismando. Per Pound

No. 15—Humboldt Warranted Extra Cast Steel, Oil Finish Weight 6 to 9 lbs. . . $0.50

Should a Tool **Marked Humboldt** break in consequence of a **Flaw in the Steel** a new one will be given in exchange; but not when Tool breaks purchased more than one year



Cedar, Falling Pattern.

Solid Cast Steel, Oil Finish.

Code Abispado. Per Pound

No. 60—Weight 4 to 12 lbs., . . . $0.30

Oregon Pattern.

Solid Cast Steel, Oil Finish.

Code Abitable. Per Pound

No. 70—Weight 5 to 10 lbs., . . . $0.30

"HARRINGTON" EXTENSION GAP LATHES

FOUR SIZES

25-inch and 39-inch 28-inch and 48-inch 36-inch and 60-inch
48-inch and 72-inch

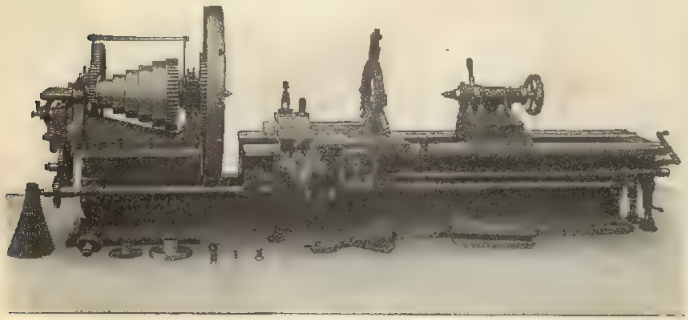


FIG 2440.

The Gap can be MADE TO SUIT width of work.

BED, extra deep. CONE, 5 section. CARRIAGE, long, self-oiling.

NEW 10-INCH SCREW-CUTTING FOOT LATHE.

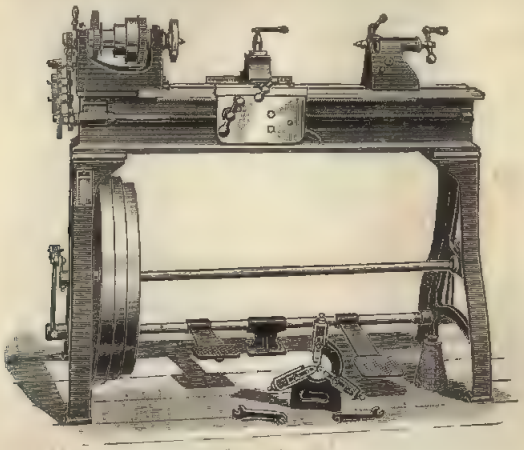


FIG 2139

This Lathe has been designed to do accurate and substantial work with ease and rapidity. This, as well as our other lathes, is made of the best material, while the workmanship and finish are of the highest grade.

The Head Stock is detachable so as to admit of readjustment should the spindle become untrue. The Tail Stock has an adjustable side movement for taper turning. The Carriage is gibbed to the bed both front and back, rendering it very stiff. It is detachable for hand work, and can be thrown into feed instantly for turning or screw cutting. The Bed is thoroughly braced. The Gears and Rack are cut from solid metal. This lathe is provided with the Reverse Movement in head stock.

DIMENSIONS OF 10-INCH LATHE.

Swings over bed	11 inches	Front bearing	1⅞ in. diam. x 2½ in. long
Swings over carriage	8 "	Hole through spindle	⅞ inches
Length of bed	48 "	Has 3-speed cone for 1¼-inch belt.	
Takes between centers	38 "	Weight, 470 pounds. Price, $100 00	

This lathe is built to take 40 inches between centers for $110.00, or 52 inches between centers for $120.00. With each lathe is furnished a face plate, two pointed centers, wrenches as shown in cut. Steady and Follower Rests. Gears to cut all standard threads from 8 to 40, and either a foot motion or countershaft. When both are wanted, the price will be $10.00 extra. Pulleys on Countershaft are 6x3. Speed should be 225.

EXTRAS.

We will put on a compound rest instead of a plain rest for $12.00 extra. Set of 10 metal turning tools, ready for use, $2.50. Set of wood turning tools, handled, $3.75. Hand rest, $1.75. Belt, $1.00. Extra gears, $1.50 each. 9-inch face plate, $2.00. Chuck plate, $1.25. We will furnish a pair of raising blocks to raise the head and tail stocks of lathe so as to swing 13 inches over bed for $10.00 extra.

BENCH LATHES.

We will put this lathe on short legs, to be used as a bench lathe, with countershaft, at same price as given above, or without either countershaft or foot motion at $8.00 less than above prices.

Also made in 9-inch swing

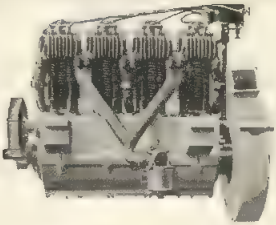
Henry Trebert's Powerful Light Motor

Just what you want for your car, it will take you anywhere at record speed if you so choose to go. We also manufacture transmissions that will stand the strain of this motor, both direct and double chain drive.

Ask for testimonial letters and catalog.

Trebert Auto & Marine Motor Co.

407 St. Paul Street **ROCHESTER, N. Y.**



12-14 H. P. Air Cooled. Weight 225 lbs.

Our motive power equipment insures you of decided satisfaction, as they are powerful, light, durable and easy to install.

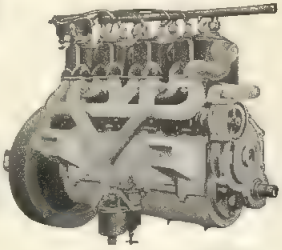
We are specialists in this line, so why not let us figure with you? Our catalog is yours for the asking. Write

The Kirkham Motor Mfg. Co.

BATH, N. Y.

MR. AUTOMOBILE MANUFACTURER: ARE YOU SATISFIED?

Are you satisfied with your motive power equipment, and are your customers satisfied as well? It's worth dollars and cents to YOU to have a satisfied feeling, and more, if your customers have the same feeling.



15-20 H. P. Water Cooled. Weight 260 lbs.

Dynamite.

Hercules.

Per Cent,	30	40	50	60
Per Pound,	$....	....	.	.

Can also furnish **Judson, Giant or Vigorite Dynamite** if so specified. Cartridges will in all cases be furnished unless otherwise specified. Can furnish Cartridges 1, 1¼, 1½ or 1¾ In. Diameter

Hercules Gelatin.

Per Cent,	30	40	50	60
Per Pound,	$....	....	....	.

50 Pounds in a Case.

Hercules Gelatin is a Plastic High Explosive made of [illegible] Nitro Glycerine, Having Extraordinary Disruptive Power and being practically free from Fumes. Can Only be Used to its Maximum Effect in [illegible] Shafts, Mines and all other places where there is poor ventilation, and also for Submarine Work.

Hercules Gelatin is more difficult to explode than Hercules Dynamite, and therefore we recommend the use of Extra Strong Quintuple Force Caps or Double Strength Electric Exploders when the firing is done by electricity, for Caps of these kinds develop the Full Explosive Force secured.

The Brands and Grades of Hercules Gelatin are the same as Hercules Dynamite with the addition of the word Gelatin. Hercules Gelatin is packed in Cartridges, same sizes as Hercules Dynamite, being of greater density than Hercules Dynamite, therefore fewer Cartridges to the Case.

Write for Prices in Car Load Lots. Dynamite can only be shipped by Freight

Blasting Powder.

	Per Keg
Judson or Champion Brand, F, FF and FFF, Black.	$....

25 lbs. in a Keg.

Judson Powder.

A Granulated Powder, Black in Color, Used in Place of Ordinary Blasting Powder, where More Explosive Force is Required. Specially Adapted to Blowing Out Green Stumps.

We Positively Cannot Ship Dynamite with Hardware or Other Goods.

In all cases where Dynamite is entered on order with Hardware, we will ship it direct from nearest magazine.

This class of goods can only be shipped by Rail. Orders for Forwarding by Passenger Steamers or Steamers having magazines will have Black Powder for shipment, but it is unlawful for them to carry High Explosives, such as Dynamite, etc.

Dynamite Caps.

	Per 1000
XXX—Dynamite Blasting Caps, .	$. .
XXXX—Dynamite Blasting Caps, .	.
XXXXX—Dynamite Blasting Caps, .	. .

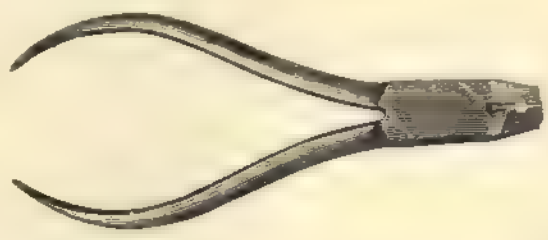
Fuse.

	Per 1000 Feet
Single Tape, ...	$. . .
Double Tape, . . .	.
Triple Tape, . . .	

3000 and 6000 Feet in a Case.

We carry in Stock the Following Brands: **Bear, Ensign Bickford, Eva, Western and Metropolitan.**

Cap Crimpers.



	Per Dozen
Combined Crimper, ...	$12.00

HAND CARS—Continued.

3968-36¾ Juvenile Hand Car. Girls and boys two to four years. Wheels, 12 in. rear; 6 in. front; ⅜ in. rubber tires. Rear crank axle 7-16 in. steel, front axle ⅜ in. steel. Very light, only weighs 10 lbs. Highly recommended by physicians for delicate little tots for the development of lungs, arms, back, hips and legs. A whole gymnasium in itself, for indoors or outdoors. Propelled by a direct crank axle and steered with a foot-bar, it is the easiest of all vehicles for small children to operate. Seat has elevated sides and back—child cannot possibly fall off. Finished in "royal red," tastily decorated in yellow and handsomely polished. Rubber tires guaranteed. Strongly and securely packed and crated **Each, $3.65**

1976-50 Juvenile Hand Car. Girls and boys five to eight years. Seats are 10 x 18 in. having elevated rails to prevent child from slipping off. The front seat has side rails only so rider can face about and help operate the lever. Both are mounted on crucible steel springs. Distance between seats 15 in. Foot steering bar to front of rear seat 18 in. Can vary this to suit. Frame is 42 in. long and 10 in. wide. Wheel base is much wider than frame, being 14 in. Rubber tires guaranteed. Weight 25 lbs. Crated ready for shipment. **Each, $5.00**

1977-60 Same as 1976-50. Equipped with chain and sprocket gear giving double speed. **Each, $6.00**

Will be shipped direct from factory or will be shipped from Chicago on one week notice

1980-60 Double High Flyer. A jolly "flyer" without a doubt. Double connected handles and steering bars. Both can operate or one can operate from either seat. Is 43 in. long and 8 in. high. Between seats, 16 in. Seats 10 by 15 in. with elevated sides and back. Frame and handles of oak. Gear, wheels, axles, etc., same as No. 1979. Front of rear seat to foot steering bar 22 in. Front of forward seat to front axle 18 in. Can vary this distance on rear seat to suit. Rubber tires heavy ½ in. guaranteed. A coaster and climber. Strongest car made. Easy running; light to handle. Weighs but 25 pounds. Friction coasting brake cost 50 cents extra. Securely crated. **Each, $6.00**

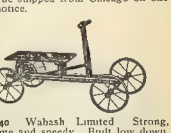
Will be shipped direct from factory or can be shipped from Chicago on one week notice

1978-60 Jubilee High Flyer. A perfect auto for boys or girls five to twelve years. Body and seat of poplar, with steel front and back. Running gear frame, bolsters and the handle of oak. Has high speed gear consisting of double gear cogs running in triple combination one piece boxing through which passes the ⅜ in. cold rolled steel shafting rear axle. Main gear connected to handle by steel reach rod ½ in by ⅜ in. Front axle of ⅝ in steel. All bearings finely machine turned, ream and have suitable oil holes. WHEELS: 12 in. rear; 9 in. front; 16 heavy spokes in each. Hubs are 2¾ in. long with ½ in. hole. RUBBER TIRES are ⅝ in. and guaranteed. Can be easily replaced when worn out. SPEED: one revolution of handle turns power wheel three times so it has plenty of speed and very easy running. Built low and broad, making overturning impossible. Body 30 in long, 13 in. wide, 8 in high. Seat 10 by 15 in., and 16 in. above floor. Distance from foot steering bar to front of seat, 21 in. Can vary this when desired. Body conceals lower limbs. Just the thing for protection. Finished in "Royal Red" decorated in yellow and handsomely polished. Weighs but 26 lbs. Securely crated for shipping anywhere. **Each, $6.00**

Will be shipped direct from factory or can be shipped from Chicago on one week notice

1979-72½ Jubilee Double High Flyer. An exciting touring car for two boys or girls from two to twelve years. A very small child can ride the front seat. The handles and steering bars are double connected so that both can operate. One child can operate it from either seat. Body and seats are poplar with steel front and back. Body 43 in. long, 13 in. wide. Seats 10 by 15 in. and have elevated sides and back. Between seats, 15 in. Front of rear seat to foot steering bar, 24 in. Has same high speed gear as No. 1978-60, also same wheels and high grade finish. The running gear frame is heavier and the front axle is 9-16 in. square steel. The rear gear is elevated one inch above the front seat. A perfect coaster and hill climber. Weight complete 35 lbs. Securely crated. **Each, $7.25**

Will be shipped direct from factory or can be shipped from Chicago on one week notice.



2388-40 Wabash Limited. Strong, handsome and speedy. Built low down, well balanced and designed especially to run fast; handsomely finished in bright, lasting colors, striped and scrolled by hand, turned bearings. Gears are covered to protect the clothing. 36 in. frame, 11 in. wheels, rubber tire. Packed each in a crate. **Each, $4.00**

6509-45 "English Mail" geared hand car. 43 in long, 22 in. wide, 32 in high from floor to top of handle. Seat 9 x 20 in. Iron wheels, 10 and 16 in. Finish black frame and seat, gears and springs green, fine red and white stripes. Suitable for children 3 to 10 years old. This hand car is very speedy on account of the gearing with sprocket and chain. Best quality of bicycle chain, sprockets are nill milled. This is the **easiest running and best constructed hand car** on the market. ⅝ in. rubber tire wheels **Each, $4.50**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

THE FAMOUS "COLUMBIA" AUTOMOBILE.

Handsomely finished and decorated, very easy running. Packed each in crate. The "Columbia" is the most popular Auto. ever put on the market. It won on its own merits

Patented.

6507-32½ Body 14 x 30 in., wheels 10 and 16 in tinned, steel tires. **Each, $3.25**

6508-37½ Body 14 x 30 in., wheels 10 and 16 in tinned, ⅜ in. rubber tires. **Each, $3.75**

6502-35 Body 15 x 36 in., wheels 12 and 18 in tinned. **Each, $3.50**

6503-40 Body 15 x 36 in., wheels 12 and 18 in. tinned, ⅜ in. rubber tires. **Each, $4.00**

THE "MORS" AUTO.
Lamp and horn extra.

Body 34 x 14 in. Finish, Special auto. red, decorated and nicely striped with gold bronze. Wheels, 12 and 18 in. tinned, steel tires. Gears enameled green. Hinged seat; large compartment under seat.

6500-35 With plain steel wheels. **Each, $3.50**

6501-40 With plain steel wheels, rubber tires **Each, $4.00**

Each in case

THE "TOLEDO" TANDEM AUTO.

Body 15 in. wide, 38 in. long. Finish, bright red, gold bronze striping. Upholstered in crimson embossed mohair plush. Wheels, 12 and 18 in., tinned; steel tires. Gears enameled black. Sheet steel dash

6504-45 With plain steel wheels. **Each, $4.50**

6505-57½ With plain steel wheels, and rubber tires. **Each, $5.75**

Each in case.

ROYAL TRAP.

6506-65 Royal Trap. Enameled green, leatherette upholstering, Columbia finish, gears green; seat raises. Size, 14½ x 44½ in.; wheels, 12 in. and 18 in., ½ in. rubber tires. Each in case. **Each, $6.50**

THE CELEBRATED "TOLEDO" ALL WROUGHT STEEL GEAR WAGONS.

The most popular Express Wagon ever put on the market. **Unequaled in strength, finish and beauty. Dovetail Jointed Bottoms.** They do not **separate at the joint.** The only express wagon bottoms with this superior joint. Bodies beaded, top and bottom. Hand finished. The only perfect fifth wheel. The upper and lower front gears interlock. Large double circle plates. Handles are equipped with **handle irons. Rear gear braces** are staggered more than any other makes and are stronger for this reason.

On wagons No. 6278-100 and larger a brace is supplied to rear axle, and is attached to the center of axle, and is bolted to the wagon bottom

Cut shows style 6278-100, 6279-120, 6280-135.

6275-70 Body 9 x 18 in, wheels 6 and 9 in., steel tires, tinned. ½ dozen in case **Per doz., $7.00**

6276-75 Body 10 x 20 in, wheels 7 and 10 in., steel tires, tinned ½ dozen in case **Per doz., $7.50**

6277-82½ Body 11 x 22 in., wheels 8 and 14 in., steel tires, tinned. ½ dozen in case. **Per doz., $8.25**

6278-100 Body 12 x 24 in., wheels 8 and 12 in., "C" plate, steel tire, tinned ½ dozen in case. **Per doz., $10.00**

6279-120 Body 13 x 26 in., wheels 10 and 14 in., "C" plate, steel tire, tinned ½ dozen in case. **Per doz., $12.00**

6280-135 Body 14 x 28 in., wheels 12 and 16 in., "C" plate, steel tire, tinned. ½ dozen in case. **Per doz., $13.50**

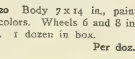
WABASH WAGONS.

We direct careful attention to the perfect proportions and attractive style of the "Wabash Wagon." It is the real farm wagon in miniature, with end boards, end rods, reach and fifth wheel and necessary braces. It will be noticed that the gear braces are independent of the box. The box is made of selected cotton-wood, light and durable; the gear of well seasoned oak. The wheels are exclusive design and invention. These wagons are carefully finished and painted, with hand striping and scroll. They are built especially to attract the buyer who wants a handsome high class wagon

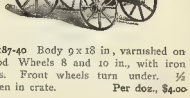
2386-35 New style Wabash Wagon. Size of box 24 x 16 x 15½ in. Size of wheels 11 and 15 in. **Steel tires.** Packed each in a crate. **Each, $3.50**

2387-45 New style Wabash Wagon. Size of box 24 x 16 x 15½ in. Size of wheels 11 and 15 in. **Steel wheels and rubber tires.** Packed each in crate. **Each, $4.50**

WOOD AXLE WAGONS.



6186-20 Body 7 x 14 in., painted in bright colors. Wheels 6 and 8 in., with tin tire. 1 dozen in box. **Per doz., $2.00**



6187-40 Body 9 x 18 in, varnished on wood. Wheels 8 and 10 in., with iron tires. Front wheels turn under. ½ dozen in crate. **Per doz., $4.00**

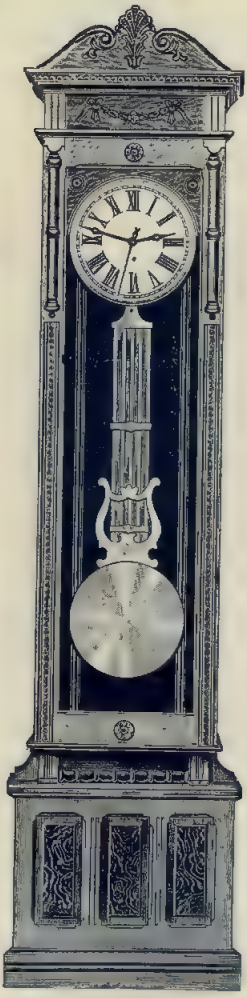
Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

SWISS.

No. 513. REGULATOR.

Quartered oak or walnut. Polished finish. 8 day. weight, time. Brass weight. Dead-beat Escapement, sweep second, retaining power, 12 inch porcelain dial. Height, 96¾ inches. Width, 28⅞ inches.

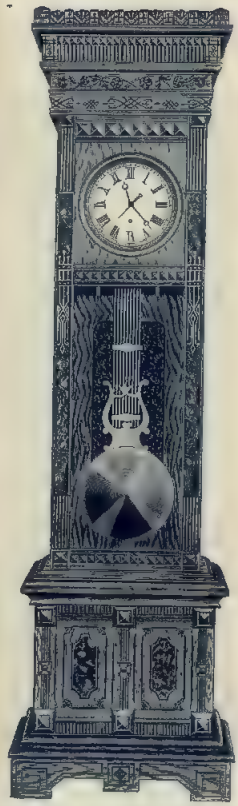
With Gridiron Pendulum, Oval Rods .....$ 90 00
With Compensating Mercurial Pendulum.. 122 00



No. 514. STANDING REGULATOR.

Oak. Height 8 ft., width 23 in., dial 12 in...$51 50

Write for different style tops



No. 515. STANDING REGULATOR.

Walnut or Oak. Height 8 ft. 6 in. width 2 ft 8 in. 8 day time. Cabinet finished glass sides 12 in. porcelain dial, dead beat escapement, sweep second, brass weight retaining power, gridiron pendulum.

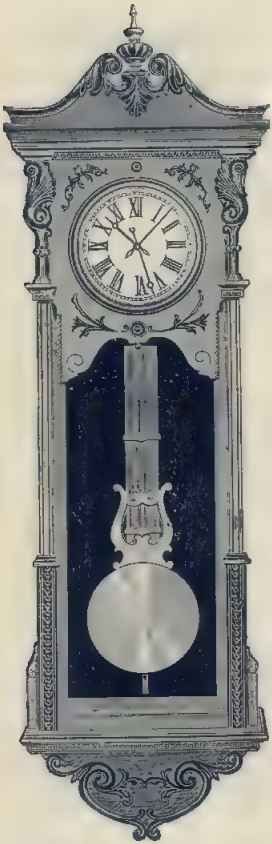
List each $110 00

Mercurial Compensating Pendulum, with Mercury in 3 cut glass jars.

List each 130 00

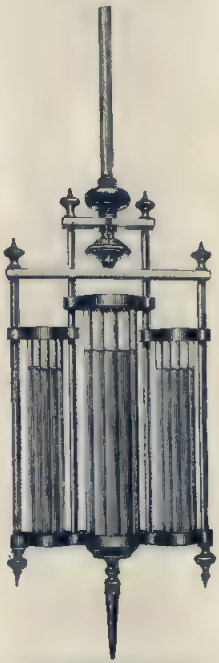
OAK FINE HIGH GRADE SWISS REGULATORS—OAK.

THE CASES Are Finished In Natural Color, Hand Carved Ornamentation, Glass Sides, Made of Well Seasoned Kiln-Dried Hardwood, Finished With Care And to Give Satisfaction. THE MOVEMENTS Are of The Very Best Quality, Durable And Correct Timekeepers.



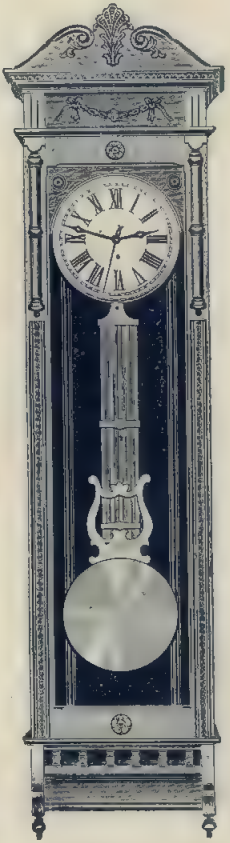
No 516. REGULATOR. List. $74 45

Oak Extra Finish. Height 83 inches, width 21 inches, dial 14 inches, glass sides and front, panel, hand carved Swiss movement, 8 day, weight, time 12 hours, seconds sweep second, solid cut pinion, extra strong power movement, creased hardened and tempered steel escapement, finest regulator obtainable.



8-JAR MERCURY PENDULUM.
No 517. Extra, $33.50
Including Mercury

RELIABLE TIMEKEEPERS.



No. 518. REGULATOR. List. $65.05

Oak Height 81 inches, width 21 inches, glass sides and front, panel, hand carved ornaments, Swiss movement, 8 day, time 12 hours, seconds sweep second, solid cut pinion, extra strong power movement, creased hardened and tempered steel escapement, finest regulator obtainable.

THE HOLLEY MAGNETO

HUFF SYSTEM

Price, $135.00 complete

This is a semi high-tension magneto, the system of which is radically different from any machine now in use. Patents have been applied for in seven countries. It operates with a condenser and spark coil. We claim the following:

It is the only machine that will build up the magneto and make the machine stronger after a year's use than when new. This we have proven by actual experience.

It uses one spark coil with trembler, which works with battery and STOPS when magneto operates, thereby giving a vibrating spark to start on and single spark when magneto operates, making the timing absolutely correct.

It is the simplest system in existence, BARRING NONE.

Water and dust proof.

The magneto will increase the horsepower from six to ten per cent. on account of the spark being so much hotter than a spark from the spark coil.

It is not necessary to charge the lead on the spark when the magneto is in use, as the spark gets proportionately hotter as the speed increases.

We will produce 3,000 this season, 1,000 of which have been sold to a manufacturer, who has tested several samples on the road continuously for six months.

HOLLEY CARBURETORS

have been adopted and are used exclusively by the largest and most successful automobile manufacturers in this Country, including the Winton Motor Carriage Co., Olds Motor Works, Ford Motor Co., E. R. Thomas Motor Co., Wayne Automobile Co., Mitchell Motor Car Co. and many others. Price of top or side outlet with standard pipe connections,

¼ inch	. . . . .	$11.50
1 "	gasoline outlet . .	12.00
1¼ "	" " . .	13.00
1½ "	" " . .	14.00

Increase the power of your car by attaching one of the following special carburetors

Oldsmobile Runabout	$12.00	Northern, Runabout	$12.50
" Tonneau Car	11.50	" 2-cylinder Touring Car . .	14.00
" Touring Runabout	11.50	Franklin 4-cylinder Runabout,	
Ford 10 H.P., Model C	11.50	10 and 12 H.P. . . .	12.00
Winton, Model B and C	18.00	Two-cylinder Buick	14.00
Cadillac, single cylinder	13.50	8 H. P.	13.00

Write for particulars concerning special carburetor for the Orient Buckboard, also our new motor cycle size. Price, $11.00.

Our new heater attachment for Ford "F" cars is ready. Greatly increases the efficiency of the car during cold weather. Price, $5.00.

Write for full information. Circular A sent on request.

HOLLEY BROS. CO., 668 BEAUBIEN ST. DETROIT, MICH.

CLOTHES WASHERS.

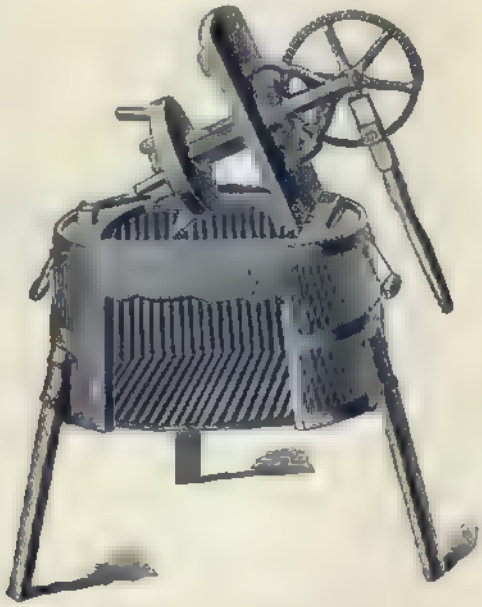
Horton Rotary No. 12.

In this machine the gear is so constructed that all parts of the mechanism are in actual use when the pin wheel is driven in either direction, and no parts run idle, nor is any of the power of the drive shaft absorbed in shifting from one set of gears to another. Thus, in this machine the least possible friction occurs and the high power action is obtained with consequent greater speed.

Two revolutions of the Fly Wheel turn the Pin Wheel or Dasher seven-eighths way around and back, making it the highest speed Rotary mechanism ever put on the market. It operates in either direction.

The tub has a greater capacity than any other make of this design. It is made of the best grade of Red Louisiana Cypress, and is handsomely finished in natural wood.

No. 12 Rotary Washers . . . . . Mfrs. price, per doz., $96.00 Our net price, each, $7.00



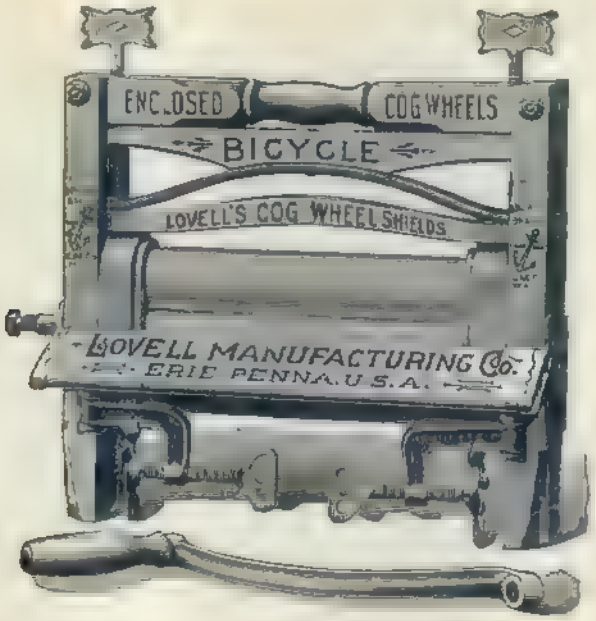
Horton American No. 5.

This machine is strongly built of the best grade of Red Louisiana Cypress, and finished in natural wood. All iron parts are neatly fitted and japanned.

Made in one standard size only, which is as large as any in the market of a similar design.

No. 5 American Washer . . . . . Mfrs. price, per doz., $60.00 Our net price, each, $4.00

CLOTHES WRINGERS.



Wood Frame. Cog Wheel Shields. Ball Bearings. Flat Steel Springs.

Bicycle, No. 770, 10-in.	Warranted three years	Mfrs. price, per doz., $61 00	Our net price, each,	$3.50
" " 771, 11-in.	" " "	" " " 67.00	" " "	4.00
Easy, No. 730, 10-in.	" one "	" " " 52.00	" " "	3.00

Wood Frame. Cog Wheel Shields. Regular Bearings. Flat Steel Springs.

Kingston, No. 660, 10-in.	Warranted three years	Mfrs. price, per doz., $54.00	Our net price, each,	$3.15
Windsor, " 650, 10 in.	" two "	" " " 50.00	" " "	3.00
Brighton, " 630, 10-in.	" one year	" " " 45.00	" " "	2.75

Wood Frame. Open Gears. Ball Bearings. Flat Steel Springs.

Bicycle, No. 110, 10-in.	Warranted three years	Mfrs. price, per doz., $58.00	Our net price, each, $3.50

Wood Frame. Open Gears. Regular Bearings. Flat Steel Springs.

Domestic, No. 110, 10-in.	Warranted three years	Mfrs. price, per doz., $51 00	Our net price, each,	$3 00
Brighton, " 110, 10-in.	" one year	" " " 42 00	" " "	2 50

Wood Frame. Open Gears. Metal Bearings.

For Stationary Wood or Soapstone Tubs. Reversible Water Boards.

Flat Steel Springs.

Domestic, No. 340, 10-in.	Warranted three years	Mfrs. price, per doz., $57.00	Our net price, each, $3.35

Galvanized Malleable Iron Frames. Clamps open 1 1-4 inches. Steel Spiral Springs.

Pioneer, No. 22, 10-in.	Warranted one year	Mfrs. price, per doz., $42.00	Our net price, each, $2.50

FOLDING BENCH WRINGERS.

Cog Wheel Shields. Flat Steel Springs. Ball Bearings. Reversible Water Boards.

Bicycle, No. 770, B, 10-in.	Warranted three years	Mfrs. price, per doz., $81.00	Our net price, each,	$4 75
Easy, " 730, B, 10-in.	" one year	" " " 72.00	" " "	4 25

Cog Wheel Shields. Flat Steel Springs. Ball Bearings. Reversible Water Boards.

Domestic, No. 670 B,	Warranted three years	Mfrs. price, per doz., $74.00	Our net price, each,	$4.35
Brighton, " 630 B,	" one year	" " " 65.00	" " "	3.75

STAPLES-WILLIAMS SNOW SHOVELS.

About nine-tenths of the snow fall during our winter is so light, that large quantities can be handled easily and to advantage by the use of one of these snow shovels on runners.

One man can do the work of five men with ordinary shovels, as all lifting and throwing snow is done away with, the load being carried on runners to where it is to be dumped.

For side-walks, driveways, yards or roofs it is unequalled. The shovels are light, strong and durable, and have met with great success where introduced.

2¾ x 2¾ feet	Mfrs. price, each, $4.25	Our net price, each, $4.00
2½ x 2½ "	" " 4.00	" " 3.75
2 x 2 "	" " 3.00	" " 2.75

BRECK'S IMPROVED BOSTON SNOW SHOVEL.

Realizing that there is a large demand for a stronger and better snow shovel than those generally offered, we designed and put on the market the Improved Boston Snow Shovel. This shovel is made without the use of a single nail, all parts being riveted together.

We use practically as strong a handle as that used in the regular steel shovels, but made eight inches longer, for greater ease in handling snow. Fastening is of best malleable iron. The tip is also of malleable iron riveted to the wood, flush, so that there is no obstruction to the snow readily sliding off. Everyone using the Boston Shovel speaks loudly in its praise.

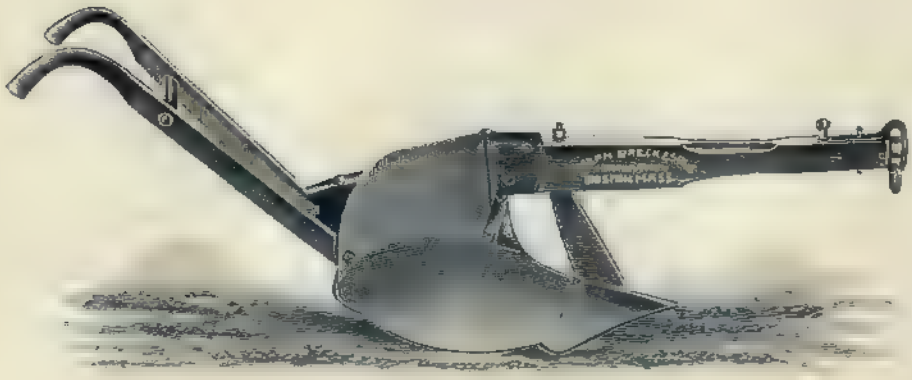
Boston Snow Shovel . . . . . Mfrs. price, per doz., $8.00 Our net price, each, $0.50

SAP OR MILK YOKES.

A very convenient arrangement for carrying two pails of milk, water, etc., at once. Recommended by the largest dairies and maple sugar orchards. Well made and durable.

Mfrs. price, per doz. . . . . $18.00 Our net price, each $1.25

BRECK'S GUTTER SNOW PLOW.



We are assured by the Superintendents of Streets in a number of nearby towns and cities that the Breck's Gutter Plow with Snow Mouldboard is far superior to any other for design, durability, and the work accomplished. Attention is particularly called to the method of locking point and coulter together, thereby bracing the whole structure. With the snow mouldboard removed, the Breck Gutter Plow is suitable for road work or meadow plowing.

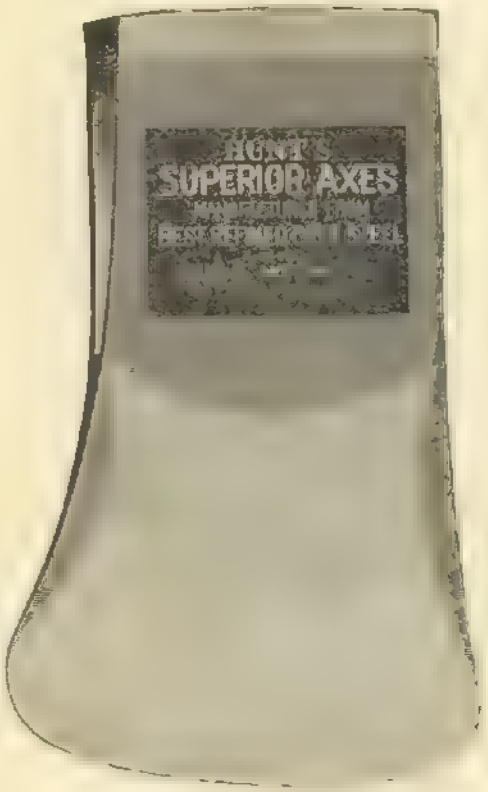
Breck Gutter Snow Plow . . . . . Mfrs. price, $18.00 Our net price, $15.00

BRECK'S SIDEWALK SNOW PLOW.

The best sidewalk plow offered. It has an adjustable wing which makes it adapted to wide or narrow walks. Wing can be quickly thrown in or out in passing trees without stopping horse. It is also arranged so it can be raised, making it easy to go over rough walks, curbstones, or in turning. Width of regular size with wing closed, 3 feet, 3 inches. With wing thrown out, 5 feet, 3 inches. Can be built any width ordered.

Regular size . . . . . Mfrs. price, $60.00 Our net price, $55.00

Single Bit Axes.



Hunt's, Unhandled.

Ohio Pattern.		Michigan Pattern.	
Code Abanican.	Per Dozen	Code Abanto.	Per Dozen
No. 90—Superior Cast Steel, Black Finish, Polished Bit,	$10.00	**No. 100**—Superior Cast Steel, Black Finish, Polished Bit,	$10.00
Weights: Assorted, 3 to 4, 3½ to 4½, 4 to 5 lbs.		Weights: Assorted, 3 to 4, 3½ to 4½, 4 to 5 lbs.	

One Dozen in a Case; Shipping Weight 50 lbs. Per Case.

Hunt's, Handled.

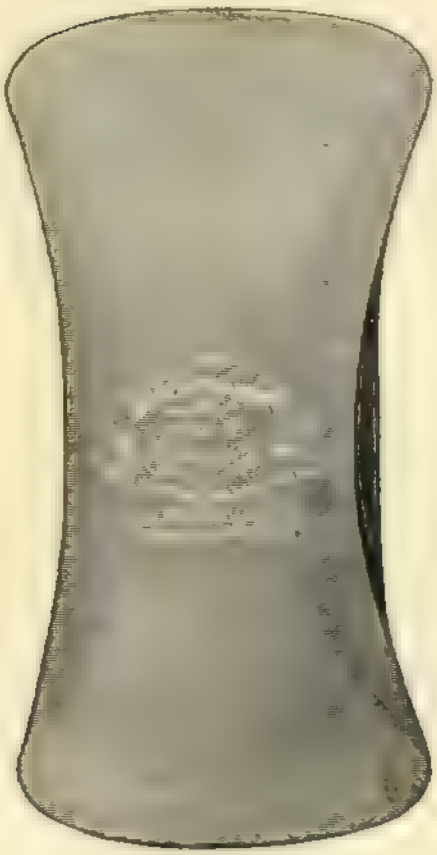
Ohio Pattern.		Michigan Pattern.	
Code Abantesma.	Per Dozen	Code Abarataba.	Per Dozen
No. 91—With XXX Octagon Handles	$15.00	**No. 101**—With XXX Octagon Handles	$15.00
Code Abantidas.		Code Abarbado.	
No. 92—With Extra Handles,	14.50	**No. 102**—With Extra Handles,	14.50
Code Abaories.		Code Abarbar.	
No. 93—With No. 1 Handles,	14.00	**No. 103**—With No. 1 Handles,	14.00
Code Abaptista.		Code Abarbetals.	
No. 94—With No. 2 Handles,	13.50	**No. 104**—With No. 2 Handles,	13.50

Weights

Assorted, 3 to 4, 3½ to 4½, 4 to 5 lbs.

One Dozen in a Case; Average Weight, 65 lbs. Per Case.

Double Bitted Axes.



Black Diamond, Unhandled.

Humboldt Pattern.		Young's Pattern.	
Code Abercrmos	Per Dozen	Code Abercrmos.	Per Dozen
No. 200 -Solid Crucible Cast Steel, Polished and Etched, . .	$15.00	**No. 210**—Solid Crucible Cast Steel, Polished and Etched, . .	$15.00
Weights: 3½, 3¾, 4, 4¼ and 4½ lbs.		Weights: 3½, 3¾, 4, 4¼ and 4½ lbs.	

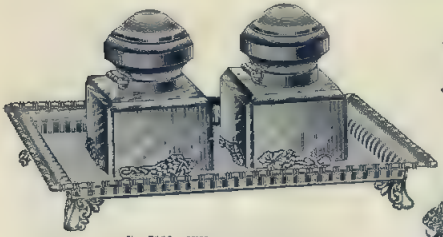
One Dozen in a Case; Shipping Weight 50 lbs. Per Case.

Can be Furnished Handled with 36 to 44 In. Handles. When Ordering Specify Length of Handle Desired

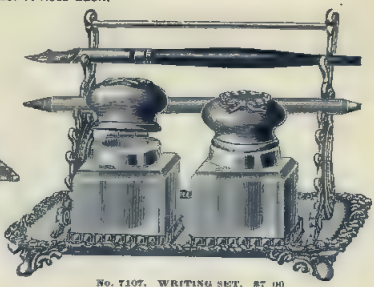
EXTRA QUALITY QUADRUPLE SILVER PLATED WARE.

INK STANDS.

Illustrations One-half Size. Prices Each.



No. 7106. INK STAND. $5.75
Burnished Tops, Cut Glass Bottles, Tray Satin Center, Burnished Pierced Border
Size of Bottles, 2¼ Inches. Size of Tray, 5½x8 Inches.



No. 7107. WRITING SET. $7 00
Cut Glass Bottles
Length, 6½ Inches

No. 7108. INK SET. $4.75
L'Art Nouveau Design
Finished in Soft Gray, Cut Glass Bottle. Good Bristle Pen Wiper
Height, 4 Inches. Diameter, 5 Inches.

No. 7109. INK STAND. $3.00
Satin Cut Glass

No. 7110. INK STAND. $3.50
Satin, Cut Glass.

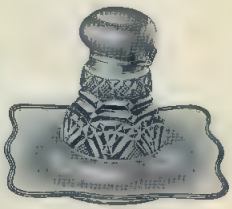
No. 7111. INK STAND. $2.00
Silver Plated. 4½x3¼x3¾ Inches

No. 7112. INK STAND. $3.75
Satin, Burnished Cover
Cut Glass Bottle

No. 7113. INK WELL. $2.20
Crystal Glass with Fine Medallion Top, Gold Plated

No. 7114. MUCILAGE. $2.75
Glass Lined with Tops

No. 7115. INK. $2.10
Glass with Pin Moistener Top.

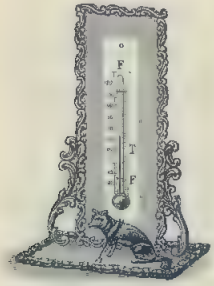


No. 7116. INK STAND. $3.00
Cut Glass Bottle.

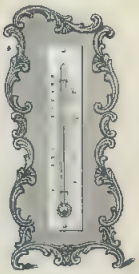
EXTRA QUALITY QUADRUPLE SILVERPLATED WARE.

CALENDARS, ETC.

Illustrations One-half Size. Prices Each.



No. 7117. THERMOMETER. $3.00
Plain Satin Finish. Height, 6¼ Inches.



No. 7118. THERMOMETER. $2.00
Plain Satin Finish.
Height, 7½ Inches.

No. 7119. CALENDAR. $2.50
(Perpetual.)
Height, 3 Inches. Width, 2½ Inches.
Plain Satin Finish.

No. 7120. CALENDAR. $3.00
Satin Finish. Revolving Holder
Height, 4½ Inches.

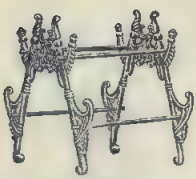
No. 7121. INK SET. $3.50
Burnished, Beaded 2½ Inch Bottle

No. 7122. LETTER FILE. $1.00

No. 7123. $1.80
Silver Mounted Blotter

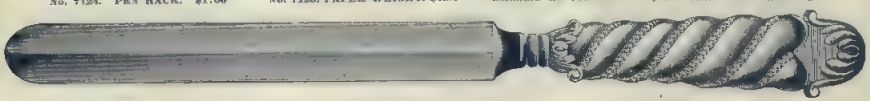
No. 7126. $2.25
Cologne Bottle and Vaseline
Beaded ring Design.
Burnished and Frosted

No. 7127. $1.00
Cologne Stand
Fitted Silver Plated.
Height 8½ Inches.
½ Pint Bottle Lundborg's Cologne.



No. 7124. PEN RACK. $1.00

No. 7125. PAPER WEIGHT. $1.00



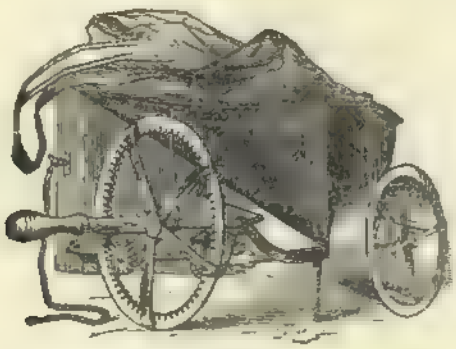
No. 7128. PAPER KNIFE

No. 7128. Gold Plated. Length 8½ Inches. $2.00
No. 7129. Silver. 1.50

Hand Potato Planters.

Code Aoncinato. **Invincible**—Galvanized Steel Wire, Steel Point with Spring, ... Per Dozen $22 50
Weight, 100 lbs. Per Dozen.
One Dozen in a Rack.

Seeders.



Code Aorcava. **Cahoon**—Hand Broadcast Seeder . Each $4.00
Weight, 4 lbs. Each.

This Seeder is considered to be the best Hand Sower made. For all grain and grass seeds.

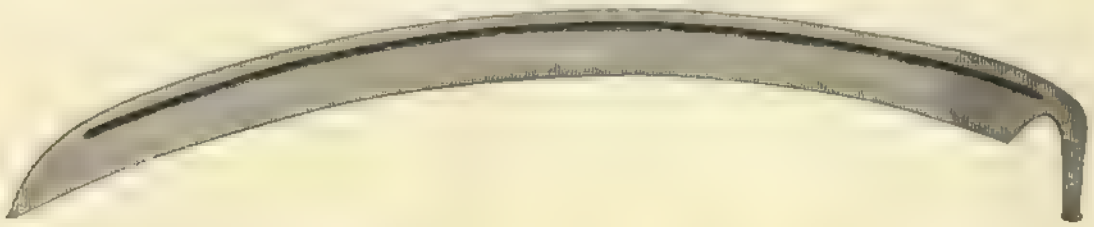
Code Aoris. **Reliable**—Hand Broadcast Seeder, . . Each $2.00
Weight, 4 lbs. Each.

This Seeder has every desirable feature of a good Sower. Is light easy running and well made

Grass and Grain Scythes.

Code Aortices. Per Dozen

No. 30—Blood's Waldron, Polished Web, Half Set, ... $6.00
Assorted Lengths, 28 to 32, 30 to 34, 30 to 36 In.
One Dozen in a Case; Weight, 30 lbs. Per Dozen.



Code Aovanuis. Per Dozen

No. 100—Vulcan, Natural Black Finish, ... $6.00
Assorted Lengths, 28 to 32, 30 to 34, 30 to 36 In.
One Dozen in a Case; Weight, 30 lbs. Per Dozen.

Code Aovando. Per Dozen

No. 34—Blood's Beaded, Polished Web, Half Set, ... $6.00
Assorted Lengths, 30 to 36, 32 to 38 In.
One Dozen in a Case; Weight, 30 lbs. Per Dozen.

Code Aovarsal

No. 31—Blood's Centennial, Polished Web, Half Set, ... 6.00
Assorted Lengths, 28 to 32, 30 to 34, 30 to 36 In.
One Dozen in a Case; Weight, 30 lbs. Per Dozen.

Bush Scythes.

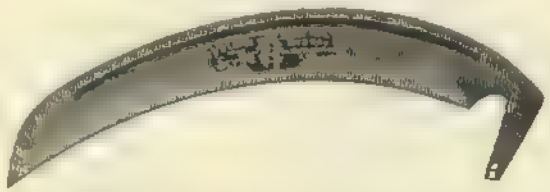
Code Apacento. Per Dozen

No. 10—Vulcan, Natural Black Finish, 21 to 24 In., ... $6.15
Weight, 28 lbs. Per Dozen.

Code Apaciquar.

No. 50—Blood's, Cast Steel, Painted Red, 21 to 42 In., ... 6.15
Weight, 28 lbs. Per Dozen.

Bramble Scythes.



Code Apadrino. Per Dozen

No. 20—Vulcan, Natural Black Finish, 28 to 30 In., ... $6 15
Weight, 32 lbs. Per Dozen.

Code Apagaras

No. 53—Blood's, Cast Steel, Painted Red, 28 to 30 In., ... 6.15
Weight, 32 lbs. Per Dozen.

Half Dozen in a Package

Revolvers.

Smith & Wesson.

Double Action Hammer.

5 Shots, Automatic Shell Ejector

Nickel Plated.

	Each
32 Cal., S. & W., C. F., 3, 3½ and 6 In. Barrel,	$12.00
38 Cal., S. & W., C. F., 3¼, 4, 5 and 6 In. Barrel,	13.00

Blued Steel.

32 Cal., S. & W., C. F., 3, 3½ and 6 In. Barrel,	12.00
38 Cal., S. & W., C. F., 3¼, 4, 5 and 6 In. Barrel,	13.00

Double Action Hammerless.

5 Shots, Automatic Shell Ejector.

Nickel Plated.

	Each
32 Cal., S. & W., C. F., 3, 3½ and 6 In. Barrel,	$13.00
38 Cal., S. & W., C. F., 3¾, 4, 5, and 6 In. Barrel,	14.00

Blued Steel.

32 Cal., S. & W., C. F., 3 and 3½ In. Barrel,	13.00
38 Cal., S. & W., C. F., 3¾, 4, 5, and 6 In. Barrel,	14.00

Bicycle Hammerless.

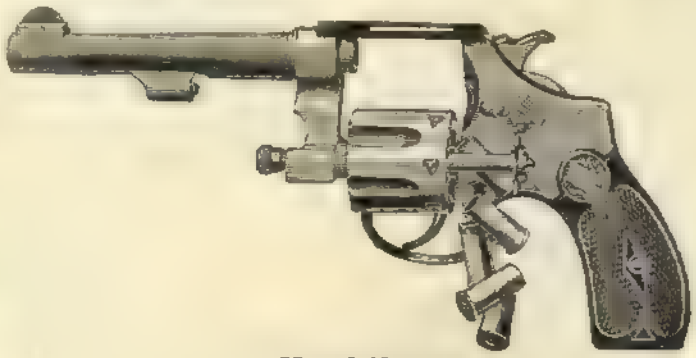
5 Shots, Automatic Shell Ejector.

Nickel Plated.

	Each
32 Cal., S. & W., C. F., 2 In. Barrel,	$13.00

Blued Steel.

32 Cal., S. & W., C. F., 2 In. Barrel,	13.00



Hand Ejector.

6 Shots, Side Shell Ejector.

Nickel Plated.

	Each
32 Cal., S. & W., C. F., 3¼, 4¼ and 6 In. Barrel,	$13.00

Blued Steel.

32 Cal., S. & W., C. F., 3¼, 4¼ and 6 In Barrel,	13.00

Military.

6 Shots, Side Shell Ejector.

Nickel Plated.

	Each
44 Cal., S. & W., C. F., 4, 5, and 6 In. Barrel,	$15.00

Blued Steel.

	Each
44 Cal., S. & W., C. F., 4, 5 and 6 In. Barrel,	$15.00

Revolvers.

Iver Johnson

Hammer.

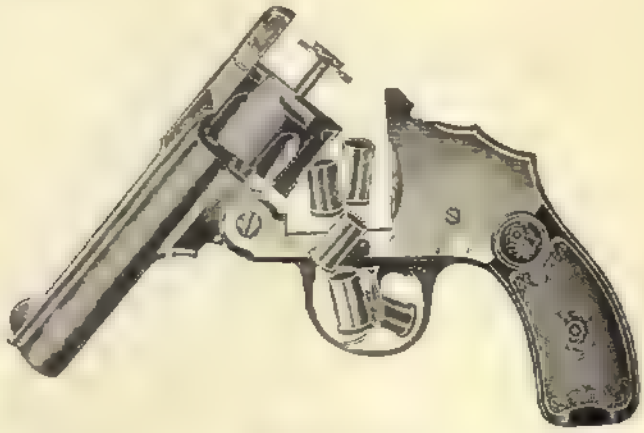
5 Shots, Automatic Shell Ejector.

Nickel Plated.

		Each
32 Cal., S. & W., C. F., 3 In. Barrel,	.	$5.50
32 Cal., S. & W., C. F., 4 In. Barrel,		6.00
32 Cal., S. & W., C. F., 5 In. Barrel		6.50
32 Cal., S. & W., C. F., 6 In. Barrel		7.00
38 Cal., S. & W., C. F., 3¼ In. Barrel,	.	5.50
38 Cal., S. & W., C. F., 4 In. Barrel,		6.00
38 Cal., S. & W., C. F., 5 In. Barrel,	.	6.50
38 Cal., S. & W., C. F., 6 In. Barrel,		7.00

Blued Steel.

		Each
32 Cal., S. & W., C. F., 3 In. Barrel		$6.00
32 Cal., S. & W., C. F., 4 In. Barrel		6.50
32 Cal., S. & W., C. F., 5 In. Barrel,	.	7.00
32 Cal., S. & W., C. F., 6 In. Barrel		7.50
38 Cal., S. & W., C. F., 3¼ In. Barrel		6.00
38 Cal., S. & W., C. F., 4 In. Barrel,		6.50
38 Cal., S. & W., C. F., 5 In. Barrel		7.00
38 Cal., S. & W., C. F., 6 In. Barrel,		7.50



Hammerless.

5 Shots, Automatic Shell Ejector.

Nickel Plated.

		Each
32 Cal., S. & W., C. F., 3 In. Barrel,	.	$6.50
32 Cal., S. & W., C. F., 4 In. Barrel,		7.00
32 Cal., S. & W., C. F., 5 In. Barrel,	.	7.50
32 Cal., S. & W., C. F., 6 In. Barrel,		8.00
38 Cal., S. & W., C. F., 3¼ In. Barrel,	.	6.50
38 Cal., S. & W., C. F., 4 In. Barrel,		7.00
38 Cal., S. & W., C. F., 5 In. Barrel,		7.50
38 Cal., S. & W., C. F., 6 In. Barrel,	.	8.00

Blued Steel.

		Each
32 Cal., S. & W., C. F., 3 In. Barrel,	.	$7.00
32 Cal., S. & W., C. F., 4 In. Barrel,		7.50
32 Cal., S. & W., C. F., 5 In. Barrel,	.	8.00
32 Cal., S. & W., C. F., 6 In. Barrel,		8.50
38 Cal., S. & W., C. F., 3¼ In. Barrel,	.	7.00
38 Cal., S. & W., C. F., 4 In. Barrel,		7.50
38 Cal., S. & W., C. F., 5 In. Barrel,	.	8.00
38 Cal., S. & W., C. F., 6 In. Barrel,		8.50

Bicycle, Hammer.

5 Shots, Automatic Shell Ejector.

Nickel Plated.

		Each
32 Cal., S. & W., C. F., 2 In. Barrel,	.	$5.50

Blued Steel.

		Each
32 Cal., S. & W., C. F., 2 In. Barrel,	.	$5.50

Bicycle, Hammerless.

5 Shots, Automatic Shell Ejector.

Nickel Plated.

	Each
32 Cal., S. & W., C. F., 2 In. Barrel,	$6.50

Blued Steel.

		Each
32 Cal., S. & W., C. F., 2 In. Barrel,	.	$7.00

JACKSON

Announcement

In introducing our line of automobiles to the trade and public for the 1906 season, we point with pride to the achievements of our Model "C," introduced in 1905, a car which has given universal satisfaction.

Our line for the coming season will consist of three cars:

Model "C," Price, $1250.00

The motor is of the two cylinder opposed type, 5¼ inch bore, 5 inch stroke. Planetary transmission. First-class equipment throughout.

Model "D," Price, $1500.00

Motor is of the opposed type, placed crosswise under the hood, 5¼ inch bore and 5 inch stroke. It is cooled without pumps or fans. Transmission of the planetary type. First-class equipment throughout.

Model "G," Price, $2500.00

Motor, four cylinder type, 5 inch bore, 5 inch stroke, developing 40 H. P. Cylinders cast separately, heads integral. Transmission, sliding gear, made by the Brown-Lipe Gear Co., oil and dust-proof. Three speeds forward and reverse. Wheel base 108 inches, tread, 56 inches Gasoline capacity 18 gallons. Excellent workmanship and finish.

Each car is a leader in its field, and the line is complete enough to guarantee any agent a satisfactory business. Jackson cars are noiseless, stylish, powerful and fast, and being well made, of the best materials, they render the maximum service for the minimum cost of up-keep. They unquestionably represent the best value on the American market to-day for either the dealer or buyer. It is possible to spend more for cars of the same type, but it is not possible to get better at any price.

CORRESPONDENCE SOLICITED

Jackson Automobile Co.

JACKSON, MICH.

1000 Miles Without a Single Adjustment

Won the Glidden Trophy for the

PIERCE

There can be no more conclusive proof of the superiority of the Pierce Great Arrow chassis for touring purposes. An American car for American roads—the Pierce is the triumphant result of six years' experience with the finest materials and a thorough knowledge of American conditions.

THE GEORGE N. PIERCE COMPANY

Buffalo, N. Y.

Manufacturers of Pierce Cycles

Members of Association of Licensed Automobile Manufacturers

THE N. A. & CO. MODEL SELF-FILLING FOUNTAIN PENS.

GOLD PENS, SOLID 14 KARAT. GOLD MOUNTING, 16 KARAT GOLD FILLED.

A Pen that fills itself. It cannot possibly get out of order, as it does not have to be taken apart to be filled or cleaned

Sectional View of the Model Self Filling Fountain Pen.

(A) Gold Pen; (B) Pen Section; (C) Barrel; (D) Ink Reservoir; (E) and (F) Air Vents.

DIRECTIONS FOR FILLING

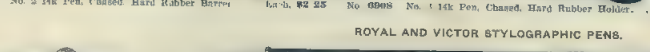
Insert pen in ink till lower end of nozzle (B) is covered then blow in air vent (F). This forces air out of flexible ink reservoir (D), and as soon as lips are removed from air vent the reservoir will draw up ink till it is filled. No unscrewing or taking apart to fill. No filler to get lost. No soiling of fingers with ink. Easily cleaned by using water and repeating the filling process

No. 6903. No. 2 14k Pen Mottled or Black Holder . . . .Per doz. $18.00 No. 6904. No. 2 14k Pen, Gold Filled Mountings . . . .Per doz. $27 00

No. 6905. No. 4 14k Pen Mottled or Black Holder Per doz. $30 00 No. 6906. No. 4 14k Pen, Gold Filled Mountings. . . . . .Per doz. $39 00

BLAIR'S INK MAKING FOUNTAIN PENS.

The object in using a Fountain Pen is to have a supply of ink in the most convenient place—the penholder. Then, if a day's supply of ink is good a year's supply is 365 times better. The only pens in the world having a year's supply of ink in the penholder, needing only water to instantly produce ink form ink. Holders non-breakable and noiseless. New ink supply 25c., will not freeze or mold. Ordinary ink may also be used.



No. 6907. No. 2 14k Pen, Chased, Hard Rubber Barrel Each, $2 25 No. 6908. No. 4 14k Pen, Chased, Hard Rubber Holder. . .Each $4 50

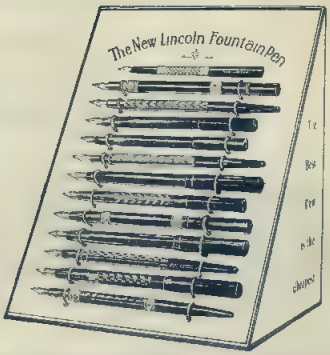
ROYAL AND VICTOR STYLOGRAPHIC PENS.

No. 6911. 3 dozen in a card $2 00
A sure Safety Fountain Pen and Pencil Holder.
Put up 3 dozen nickel holders on carton easel show card.
The best fastener ever made.
Simple in construction and pleases the user.
Retails at 20c each, list.

No. 6909. The Royal, Chased, Hard Rubber Barrel . . . . . Each $4 25
This Pen has a gold spring at the inner end of the feed, replacing the wear on the point and improving its writing qualities

No. 6910. The Victor, Plain Hard Rubber Barrel Each $0 84

No. 6912. Per case of one gross Pens $14 50
1 dozen Fountain Pens, Ink and Pen Points, nos. one and black rubber Holders assorted. Put up in a fancy glazed paper box with easel back. Each set holder, box, refills, pen and slip of directions. The best low priced Fountain for the price.



No. 6913. The New Lincoln Cabinet $20 00
Made by A. A. Waterman & Co. Is guaranteed. This assortment of 1 dozen pens put up with assorted gold mountings, chased, hard rubber barrels, assorted points, needles, pen and short holder and 3 sizes and 3 coarse. The drawer in back lets down, showing stock of 1 dozen Pen Holders with Pliers.

Illustration is one-fourth size

BRECK'S VICTOR AXES.

Ebonite Finish.

This label is on Breck's Victor Axes.
No others are genuine.

Tasmanian or Connecticut Pattern Victor Axes.

Weights
[illegible] pounds
¼
½
¾
[illegible]

Packed 1 doz axes in box, assorted weights as ordered

Tasmanian or Connecticut Pattern

The most celebrated axes in New England are "Breck's Victors." An axe that is unconditionally warranted must of necessity be the best that can be produced.

These axes are made from the best materials. The iron is double refined; the steel is made by the old English method, from the best Swedish Dannemora iron, and has no superior in quality and temper. The solid poles are punched from double refined iron, rendering the blade perfectly sound under the eye.

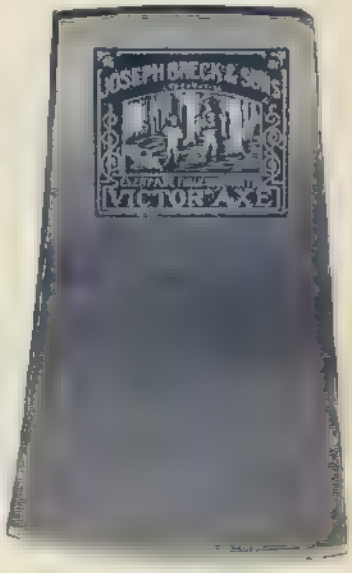
All Victor Axes are made perfectly uniform and symmetrical in shape, as well as smooth, by the use of patented forging machinery, which our manufacturers only have exclusive right to use. The steel of every axe is inserted into the middle of the iron and not placed on the outside of it, so as to give the appearance of twice the width of steel that actually exists. All the steel is thoroughly refined by hand hammering. The tempering is made perfectly uniform by the employment of skilled temperers of long experience, assisted by patent appliances, which secure perfect heating and hardening.

Patterns and Weights.

The different pattern axes used in New England are shown in this and the following pages, and are correct for the localities intended.

Half Wedge Pattern.	Aroostook Wedge Pattern.
Weights	Weights
[illegible] pounds	3 pounds
1¼ "	3¼ "
1½ "	3½ "
1¾ "	3¾ "
1 "	4 "
	4¼ "
	4½ "

Packed 1 doz axes in box, assorted weights as ordered.



Aroostook Wedge Pattern

	Half Wedge Pattern.		Aroostook Wedge Pattern.	
Breck's Victor Axes, Tasmanian or Connecticut Pattern	Our net price, per doz	$15.00	Our net price, each	$1.25
" " " Half Wedge Pattern	"	5.00	"	1.25
" " " Aroostook Wedge Pattern	"	5.00	"	1.25
Above Patterns handled with Extra Quality Hardles	"	18.00	"	1.50

BRECK'S VICTOR AXES.

(Ebonite Finish.)

Yankee or New England Pattern.

Yankee Pattern.

Weights.
2 pounds
2¼ "
2½ "
2¾ "
3 "
3¼ "
3½ "
3¾ "
4 "

Jersey Pattern.

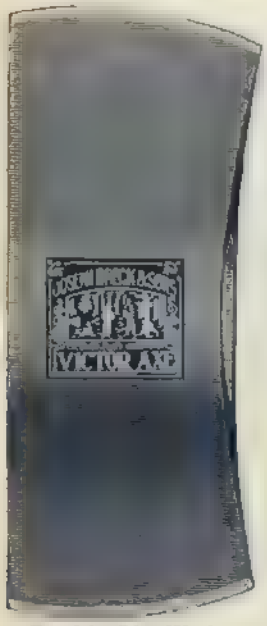
Weights.
3 pounds
3¼ "
3½ "
3¾ "
4 "
4¼ "

Packed 1 doz. axes in box, assorted weights as ordered.

Jersey Pattern.

Charcoal is the only fuel used in fixing the temper of Breck's Victor Axes. While this is the most expensive fuel its great purity prevents injury of the steel in this very delicate process, which is often caused by the use of gas and other injurious flames.

There are imitations of the Victor Axe, but the genuine Breck Victor Axes have the label shown on page 202, as well as the name "Breck's Victor" stamped on every axe. Be sure and get the genuine.



Double Bitt Wedge.

Double Bitt Wedge Pattern.

Weights
3 pounds
3¼ "
3½ "
3¾ "
4 "
4¼ "
4½ "

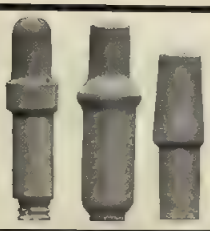
Double Bitt New England Pattern.

Weights.
3 pounds
3¼ "
3½ "
3¾ "
4 "
4¼ "
4½ "

Packed 1 doz. axes in box, assorted weights as ordered.

Double Bitt New England.

| | | |



IMPORTED

Porcelain Tubes

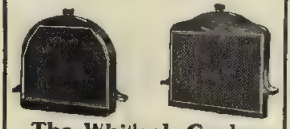
For SPARK PLUGS

Any size or shape made after drawing or model, of a heat resisting, insulating clay composition especially compounded for this purpose.

These tubes have been used for years almost exclusively by all the leading European manufacturers, and have no equal in quality. Inquiries requested.

THEO H. GARY & CO., Manufacturer's Agents

396-398 BROADWAY NEW YORK



The Whitlock Cooler

Used by the leading Automobile Builders

Manufactured by

The WHITLOCK COIL PIPE CO.

Hartford, Conn.

THE THIEM COMBINATION TOE-CLIP

We make four other styles, all adjustable and will fit Great or Small, Short or Tall, One and All.

We also make a high grade cycle meter. Our goods are for sale by all of the jobbers and expert dealers. Manufactured only by

THE THIEM MANUFACTURING CO.

COLUMBIA HEIGHTS, MINN., U. S. A.

THE SPARK PLUG HAT

It does for your spark plug what a hat does for you.

KEEPS THE HEAD DRY

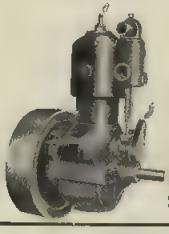
Did you ever have your motor refuse to start after being left in the rain? Did you ever have it suddenly stop from a dash of spray, or in a rain storm? If you have it will not happen again if you keep the head dry with a Spark Plug Hat.

You cannot get a shock from your spark plug when the hat is on. That is why it is popular with automobilists.

Price $1.00. Fits any plug.

Write for circular. Discount to dealers.

C. H. Stuart, Newark, Wayne Co., New York



J. KOWALSKY ENGINE CO.

Verona, Pa.

Marine Engines, Small Launches and Power Canoes

3 H. P. Marine Outfit complete, $75.00.

DETROIT AUTO SPECIALTY CO.

Makers of the **"DETROIT"**

Hoods, Radiators, Tanks, Mufflers, Hollow Metal Dashes, &c

14 Sherman Street DETROIT, MICH.

BAKER-VAWTER COMPANY

PUBLIC ACCOUNTANTS

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DEVISERS OF BUSINESS SYSTEMS

Only the Regular Corps of Bonded Accountants Officiates.

We Do Not Send Outside Men to Clients Under Any Circumstances.

Tribune Building CHICAGO

350 Broadway NEW YORK

SEE HOW EASY IT IS
to clean your Auto or Carriage with the "Ideal" Carriage Washer.
NO SPLASHING. NO COLD HANDS.
SAVES 40 per cent water, 60 per cent Labor. Impossible to Scratch or Injure the Finest Finish

Has Your Wife One?
Ideal Washer has been in use since last and has given entire satisfaction. My men no not dread washing carriages in cold weather, and thanks to the Washer I have a cleaner rig in this winter than I used to.
Yours truly,
DR. JOHN W. FOREMAN.
Dated Jan. 18th, 1904.
PRICE DELIVERED $3 50 EACH
Send to-day. You will need it to-morrow.
"Ideal" Carriage Washer Co
ROCHESTER, N. Y.

GOGGLES

TWENTY-FIVE TO THIRTY STYLES
New catalog ready January 1st. We have the best line in the country, and want every dealer to sell our goods. We can make it interesting enough for them to do so and will send full details upon receipt of letters.
JOHN SCHEIDIG & CO., Importers and Manufacturers 50 MAIDEN LANE N. Y. CITY

No. 8
4-Cylinder
Milwaukee Motor Company
Milwaukee Wis.
Bore and Stroke, 4¼ x 4½
Write us for prices before you buy elsewhere

LIPMAN ROTARY PUMPS
have been adopted by the leading manufacturers, for circulation of water and oil on automobile marine and stationary engines. All sizes, with capacity from ¼ inch to 1 inch pipe.

CARL E. L. LIPMAN
Beloit, Wis.
Agents
THE AUTOMOBILE SUPPLY CO
1339 Michigan Building, Chicago Ill.

Our 1905 catalogue is of interest to all users of automobiles and is sent free on application.

The Auto Supply Co.
1662 Broadway, New York

Send the Name of Your Car

or engine, and we will send full information about the

APPLE
Automatic Sparker
The best storage battery charger for automobile, launch or gas engine.
Address
Dayton Electrical Mfg. Co.
89 BEAVER BLDG. DAYTON, OHIO

Mr. Automobilist:

Have you tried a Never-Miss Plug? Well, Get a Set To-Day

Imported Porcelains. Platinum alloy points of contact. 1-piece porcelain. Two-piece porcelain and side to point contact is bound to annoy you. With a point to point contact your spark is in the cylinder where it should be NOT in the shell of plug. See the Point? Just say Never-Miss. The Best $1.50 Plug in the world. Want it, Write.

NEVER-MISS SPARK PLUG CO.
Lansing, Mich.

AUTO TIRES 28 x 2½ - $10.00
28 x 3 - 12.00

50 other sizes in stock, send for them

Auto Baskets We bought from Sheriff Sale 300 to fit all Machines $3.50 up

$4.75 to $9.50 for SEARCHLIGHT and ALPHA TYPE LAMPS

300 Elegant Tale Lamps, Brass, $2.25 each

WOOSTER COMPANY
10 Barclay Street, New York City

Merkel Motors

the kind that can be depended upon, are made in the following models:—

Air cooled, 4 cylinder, Vertical, 3½"x3½" 12-14 B. H. P.

Water cooled, 4 cylinder, Vertical, 3½"x3½" 14-16 B. H. P.

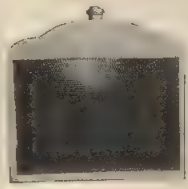
Water cooled, 4 cylinder, Vertical, 4"x4½" 20-22 B. H. P.

Water cooled, 4 cylinder, Vertical, 4½"x5" 35-40 B. H. P.

The construction is of the highest type and mechanically correct. Materials and workmanship are the best and the performance is guaranteed to be perfect. Write for specifications.

MERKEL MOTOR CO.
1098 26th AVENUE MILWAUKEE, WISCONSIN

"A COOLER THAT COOLS"



Investigate this. It is positively the best cooler on the market today. Made of small square copper tubes. Does wonderful work. Great strength and durability. Won't clog up. Won't leak. If damaged by accident, broken tubes can easily be replaced in a few minutes. We also make hoods, tanks, fenders, etc. We have the goods and the price. Write us.

Patented
FEDDERS MANUFACTURING WORKS
BUFFALO, N. Y.

We Know What's What

We ought to, having had a good many years experience in supplying materials for Vehicle Tops and Trimmings. This experience has enabled us to get together the most likely things and the best values in these lines for auto work.

We supply Bow Sockets for Cape Tops, Brass Curtain Fasteners and Top and Trimming Fabrics. New lines of the latter just in. Samples are yours for the asking.

ROEHM & DAVISON
LIMITED
DETROIT : : MICHIGAN

BEST HUBS MADE

Thousands of Jobbers Dealers, Manufacturers and Riders say so too.

E. T. HARRIS
531-545 West 15th St., Chicago

Harris Adjustable Repair Cones, Hexagon Nuts and Axles, Sulky Hubs, Motor Cycle Front Hubs, R. E. Attachments, etc., etc.

All goods Jobbers handle

Designs and Working Drawings

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Engines and Motors—Stationary, Marine and Automobile
Sold Outright

Standard designs. Eight years on the market and thousands in use. Sample castings for first engine.

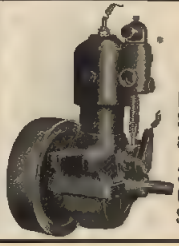
Correspondence invited.

C. M. GIDDINGS, M. E. Rockford, Ill.

HAVE YOUR TIRES REPAIRED

We recover and remake old tires if the tire is not too badly used up. Write us, our prices are reasonable. We repair all makes and sizes of automobile tires. Do not wait for Spring, have it attended to, and you will be ready.

D. E. FOOTE RUBBER CO., 73 Frankfort Street Cleveland, Ohio



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Marine Engines, Small Launches and Power Canoes

3 H. P. Marine Outfit complete, $75.00.

AUTO TIRES 28 x 2½ - $10.00
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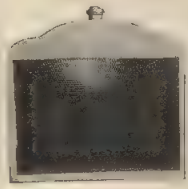

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We ought to, having had a good many years experience in supplying materials for Vehicle Tops and Trimmings. This experience has enabled us to get together the most likely things and the best values in these lines for auto work.

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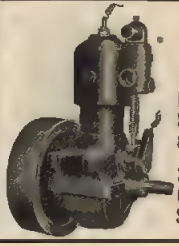


J. KOWALSKY ENGINE CO.
Verona, Pa.

Marine Engines, Small Launches and Power Canoes

3 H. P. Marine Outfit complete, $75.00.

No. 1 SECTION HAND CAR.

FIG. 2089.

Platform, 6 ft. long, 4 ft. 4 in. wide; axles, 1¼ in.; bearings, 3 in., wheels, 20 in. diameter, either all metal or wood-filled; weight, 520 lbs.

The Kalamazoo Hand Car is the highest grade produced, and is equipped with all the desirable features, such as taper-wheel and pinion-fit axles; machine-cut gears; 20 in. diameter all metal wheels; flexible steady-box; double-acting brake; wrought walking-beam; specially stout gallows-frame with vertical and diagonal bracing; car frame made of dry white ash, gained and thoroughly bolted together, braced diagonally and trussed with longitudinal and transverse wrought iron rods against any chance of sagging or getting out of true.

No. 7 PUSH CAR.

Platform, 6 ft. long, 5 ft. 6 in. wide; cast wheels, 19 in. diameter, 75 lbs. each; axles, 1⅝ in.; weight, 570 lbs.

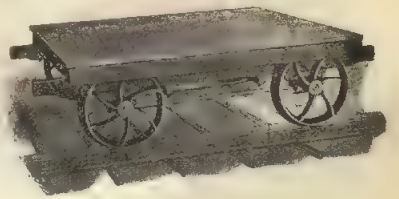


FIG. 2089.

No. 8 RAIL CAR.

For Use of Track Layers.

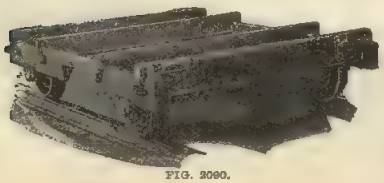


FIG. 2090.

Wheels, 16 in. diameter, weighing 104 lbs. each; side and cross sills covered with 8x¼ in. iron; two rollers at each end; axles, 2¼ in. diameter with outside bearings babbit metal; capacity, 10 to 12 tons; 8 ft. long and 6 ft. 1 in. wide over all; weight, 1450 lbs.

Fig. 2091.

PAULUS' AUTOMATIC FEED TRACK DRILL.

No. 1.

These Automatic Feed Track Drills are the only practical devices known whereby the operator is able to stand in an erect position while drilling holes in rails and angle bars.

A great saving in both time and labor is effected by use of these machines, one man being able to easily drill five holes with one of them in the same time in which one hole can be made with the ordinary ratchet drill. They require no adjustment, are always ready for instant use, and it takes but a few seconds to collapse the drill and to throw back the hooks to enable a train to pass. The automatic feed enables the operator to drill through the web of the heaviest rail section without stopping.

Price with one drill bit . . . $25 00

Weight, 60 lbs.

PAULUS' HEAVY BASE TRACK DRILL.

No. 2.

AUTOMATIC FEED

(Also known as Watermans'.)

Price with one drill bit . . . $25.00

Weight, 90 lbs.

No. 3.

Price of Girder Rail Pattern, heavy base style . . . $28.50

Weight, 100 lbs.

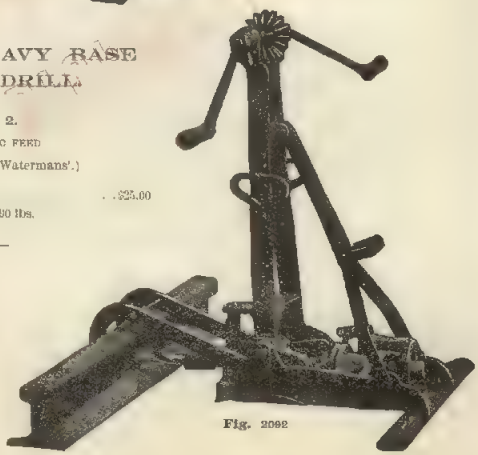


Fig. 2092

FULL JOINTED DOLL WITH FINE QUALITY BISQUE HEAD WITH CLOSING EYES.

Very pretty faces, pompadour wig and curly hair, jointed arms, elbows, wrists, hips and knees, China silk dress trimmed around neck and arms with lace edging, collar trimmed with lace edging and silk bows, lace stockings and shoes. Style of illustration No. 220. Each in a box.

4375-45	Height, 11 in	Per doz., $4.50
4376-85	Height, 12½ in	Per doz., 8.50
4377-120	Height, 17 in	Per doz., 12.00

No. 220

THE CELEBRATED KESTNER FULL JOINTED DOLLS.

These dolls are famous all over the world as being the par excellence of all jointed dolls, and are absolutely the best quality in every respect. These dolls have the finest French jointed bodies and limbs, made so as to be movable at all joints, shoulder, elbow, hip and knee; open fingers. Bodies well proportioned, superior quality fine bisque head, faces made in the latest Parisian models. This is beyond doubt the finest jointed body doll that can be had. Every item used in the construction of these dolls is of the finest quality of goods

Parted and sewed wig tied with colored ribbons, plaited Swiss dress trimmed around neck with two rows of lace insertion and ruffled silk ribbon, lace edging on sleeves, fine quality lace stockings and real patent leather shoes with silk tassels. Style of illustration No. 220.

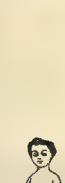
4360-270	Height, 19 in. Each in a box	Per doz., $27.00
4361-360	Height, 21½ in	Per doz., 36.00
4362-420	Height, 23½ in	Per doz., 42.00
4363-480	Height, 24 in	Per doz., 48.00
4364-540	Height, 25 in	Per doz., 54.00
4365-600	Height, 26½ in	Per doz., 60.00
4366-660	Height, 28 in	Per doz., 66.00
4367-720	Height, 29 in	Per doz., 72.00
4368-780	Height, 31 in	Per doz., 78.00
4369-840	Height, 32½ in	Per doz., 84.00
4370-1080	Height, 33 in	Per doz., 108.00

No. 13.

CHINA LIMB DOLLS.

China head, hands and feet, painted hair, eyes and shoes, flexible hip joints. Style of illustration No. 13.

3150-3	Height, 7 in. 2 dozen in a box	Per doz., $2.30
3151-3½	Height, 9 in 2 dozen in a box	Per doz., .35
3152-4½	Height, 10 in. 1 dozen in a box	Per doz., .45
3153-7½	Height, 11 in. 1 dozen in a box	Per doz., .75
3154-8½	Height, 12½ in. 1 dozen in a box	Per doz., .85
3155-12½	Height, 13½ in. ½ dozen in a box	Per doz., 1.25
3156-13½	Height, 14½ in. ½ dozen in a box	Per doz., 1.35
3157-17½	Height, 16½ in. ½ dozen in a box	Per doz., 1.75
3158-20	Height, 17½ in. ½ dozen in a box	Per doz., 2.00
3159-22½	Height, 18½ in. ½ dozen in a box	Per doz., 2.25
3160-35	Height, 20 in. 1-3 dozen in a box	Per doz., 3.50
3161-40	Height, 21 in. 1-3 dozen in a box	Per doz., 4.00



No. 1

ALL BISQUE DOLLS.

2920-4½	Movable arms and legs, painted hair. Height, 3¼ in 1 dozen in a box. Style of illustration No. 1	Per doz., $0.45
2921-7½	Movable arms and legs, painted hair. Height, 4¾ in Style of illustration No. 1	Per doz., .75
2949-4½	Extra fine quality Bisque Doll. Movable arms and legs, turning head, painted hair. Height, 2¾ in. 2 dozen in a box. Style of illustration No 1	Per doz., .45
2950-7½	Extra fine quality Bisque Doll. Movable arms and legs, turning head, painted hair Height, 4¾ in. 2 dozen in a box. Style of illustration No 1	Per doz., .75
2936-4½	All Bisque Doll With long braided hair, movable head, arms and legs. Height, 2¾ in. 2 dozen in a box. Style of illustration No. 3	Per doz., .45
2937-7½	All Bisque Doll With long hair, turning head, movable arms and legs, painted shoes and stockings. Height, 3¼ in 1 dozen in a box. Style of illustration No. 3	Per doz., .75

No. 3

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

ALL BISQUE DOLLS—Continued.

No. 4

2938-8½ Fine quality all bisque body, long braided hair, turning head, moving arms and legs, painted shoes and stockings Height, 4 in. 1 dozen in a box. Style of illustration No. 4. **Per doz.,** .85

2939-20 Fine quality all bisque body, long braided hair tied with ribbon bows, turning head, moving arms, painted shoes and stockings. Height, 5½ in. ½ dozen in a box. Style of illustration No. 5.....**Per doz.,** 2.00

2940-22½ Fine quality all Bisque Doll. Turning head, closing eyes, long braided hair with ribbon bows, painted shoes and stockings, movable arms and legs Height, 5 in. ½ dozen in a box. Style of illustration No. 5.....**Per doz.,** 2.25

2942-40 Extra fine quality Bisque Doll. With turning head showing teeth, closing eyes, long braided hair tied with ribbon bows, moving arms and legs, painted shoes and stockings. Height, 6½ in. 1-12 dozen in a box Style of illustration No 5...**Per doz.,** 4.00

2943-85 Fine quality all bisque body, turning head with closing eyes, open mouth showing teeth, long braided hair with ribbon bows, moving arms and legs, painted shoes and stockings Height, 8½ in. 1-12 dozen in a box. Style of illustration No. 5. .....**Per doz.,** 8.50

No. 5

2923-7½ Fine quality bisque body, movable arms and legs, long curly hair, glass eyes. Height, 3¾ in. 1 dozen in a box Style of illustration No. 6.....**Per doz.,** .75

2925-8½ Fine quality all Bisque Dolls. Movable arms and legs, extra long curly hair, glass eyes Height, 4½ in. 1 dozen in a box. Style of illustration No. 6.....**Per doz.,** .85

No. 6

2927-12½ Extra fine quality all Bisque Dolls. Moving arms and legs, painted shoes and stockings, long curly hair tied with ribbon bows, fine bisque head with glass eyes. Height, 4¾ in. 1 dozen in a box. Style of illustration No. 6.....**Per doz.,** 1.25

2928-15 Extra fine quality Bisque Doll. Moving arms and legs, fine quality bisque head with glass eyes, extra fine quality curly hair tied with ribbon bows, painted shoes and stockings Height, 5 in. ½ dozen in a box. Style of illustration No. 7....**Per doz.,** 1.50

2930-20 Extra fine quality Bisque Doll. Moving arms and legs, fine bisque head with closing eyes, long curly hair tied with ribbon bows, painted shoes and stockings. Height, 5½ in. ½ dozen in a box. Style of illustration No. 7.....**Per doz.,** 2.00

2935-40 Extra fine quality Bisque Doll. Moving arms and legs, painted shoes and stockings, extra fine quality bisque head with closing eyes, parted sewed wig with long curly hair. Each in a box. Style of illustration No. 7. Height, 7½ in. ....**Per doz.,** 4.00

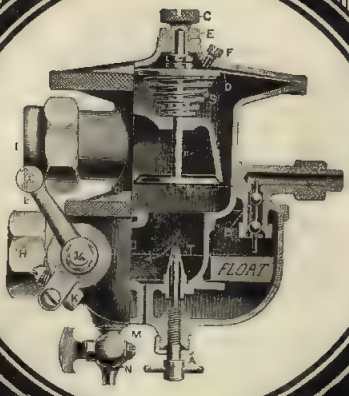
No 7

2944-7½ New style of Bisque Sitting Babies. Movable arms and legs, long braided hair. Height, 3 in. 1 dozen in a box..**Per doz.,** .75

2945-12½ New style Bisque Sitting Babies. Movable arms and legs, long braided hair Height, 4¼ in. 1 dozen in a box. **Per doz.,** 1.25

2946-20 New style Bisque Sitting Babies. Movable arms and legs. long braided hair. Height, 5 in. 1 dozen in a box....**Per doz.,** 2.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.



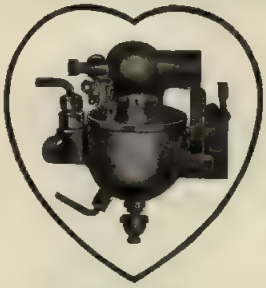
KINGSTON AUTOMATIC CARBURETOR

PRICE $50.

Above is illustrated the latest creation of Byrne, Kingston & Co. the most successful carburetor in the world. It offers a combination of features and advantages never heretofore introduced. Our faith in this carburetor is indicated by our guarantee. If it does not suit you, return it within thirty days and we will refund you your money, and ask you your troubles afterward.

BYRNE, KINGSTON & CO., Kokomo, Ind., U.S.A.

The Heart



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Sixty-five automobile and marine engine builders in the United States and Canada have adopted the Schebler. No other carburetor made in the world can show this record.

SCHEBLER SPECIAL for Cadillacs. Price, $20.00
OLDSMOBILE Carburetor, - - " 18.00
FORD. Two-Cylinder, - - - - " 18.00

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P. J. DASEY, Factory Representative, 481 Wabash Ave., Chicago, Ill.
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CONSOLIDATED SUPPLY CO., Denver, Colorado
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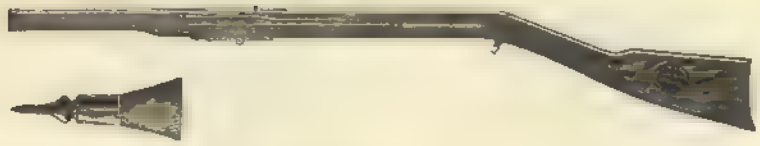
Air Rifles

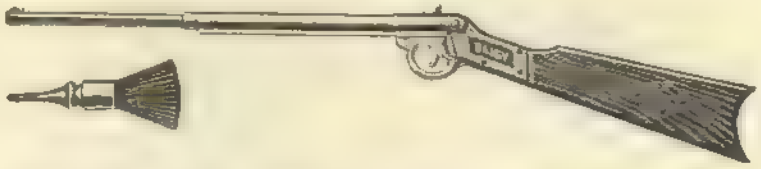
CHICAGO



Per Doz.

Chicago Single Shot—All Wood, Handles BB and Air Rifle Shot, . . . $15.00
One Dozen in a Case, Weight 28 Pounds.

DAISY.



Per Doz.

Daisy Single Shot Walnut Stock, Nickel Plated Frame and Barrel, Handles Air Rifle and BB Shot and Darts, $15 00
Daisy Repeater Same as Single Shot, only with Magazine which holds 48 BB or Air Rifle Shot, . 18 00
One Dozen in a Case, Weight 28 Pounds.

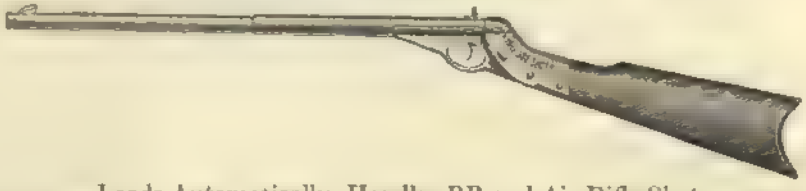
Per Doz.

Daisy 500 Shot Walnut Stock, Nickel Plated Frame and Barrel, Lever Action, Shoots 500 Times Without Reloading, Handles BB and Air Rifle Shot, ... $27.00
Daisy 1000 Shot Same as Single Shot, only Shoots 1000 Times Without Reloading, 33 00
One-Half Dozen in a Case, 500 Shot Weighs 22 Pounds, 1000 Shot Weighs 28 Pounds.

KING.

Per Doz.

King Single Shot Walnut Stock, Nickel Plated Frame and Barrel, Handles BB and Air Rifle Shot and Darts, $15 00
King Repeater Same as Single Shot, with Magazine which holds 350 BB and Air Rifle Shot, . 19 50
One Dozen in a Case, Weight 28½ Pounds.



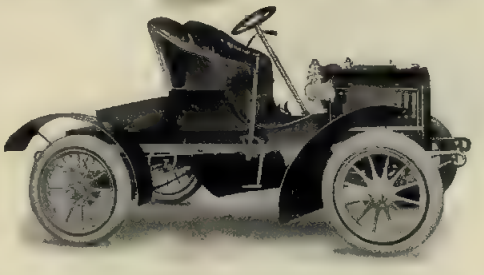
Loads Automatically, Handles BB and Air Rifle Shot.

Per Doz.

King 500 Shot—Walnut Stock, Nickel Plated Frame and Barrel, Shoots 500 Times Without Reloading, . . $27.00
King 1000 Shot—Walnut Stock, Nickel Plated Frame and Barrel, Lever Action, Shoots 1000 Times Without Reloading, ... 33.00
One-Half Dozen in a Case, 500 Shot Weighs 22 Pounds, 1000 Shot Weighs 25 Pounds.

Darts Assorted Colors, for Daisy and King Rifles, . Per Doz., $0 75

Yes—This 14-16 H. P. Yale for $800!



The Best and the Biggest Value the Year has Produced

No—your eyes haven't deceived you It's the trim, dashing, beautiful 15 H. P. Yale, and the price is $800 And the 15 H. P. is not imaginary horse-power—every ounce of it gets into action, and the car goes like—well, like no other car in America at anything approaching the price can or will go. Nothing cheapened, nothing stinted -high-grade Yale construction from hood to rear tire An engine that is happiest when you re on the high-speed—the stillest, softest running engine that ever took a hill or answered instantaneously to the crook of a finger. Beautifully balanced springs that let you down lightly as a feather, and all the power you want or can use, no matter how fast or far you want to go.

IMMEDIATE ORDERS WILL INSURE PROMPT DELIVERY

THE KIRK MFG. CO., 964 Oakwood Ave., TOLEDO, O.

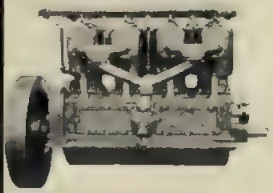
Members A. L. A. M.

Large Wheels

DURYEA vehicles ride easily. They are built like a carriage. Their large wheels carry the load and the lightly loaded front wheels are easy to push. Their tires cost little because they wear long. The best is always cheapest in the end. Investigate the DURYEA before buying.

DURYEA POWER CO.

Hockley Street READING, PA.



4-Cylinder, 4-Cycle, 18-20 H. P.
" " 25-30 H. P.
1-Cylinder, 4-Cycle, 1½ and 3 H. P.
4-Cylinder, " 12 and 18 H. P.
18 20 H. P. are air or water cooled.

Before placing an order for Motors write us for price and descriptive matter. Automobile manufacturers who contemplate closing contracts for motors, write us.

Smith & Williams

COLUMBUS, OHIO

KNIGHT'S IDEAL SAWMILL DOGS.

SINGLE. DUPLEX.

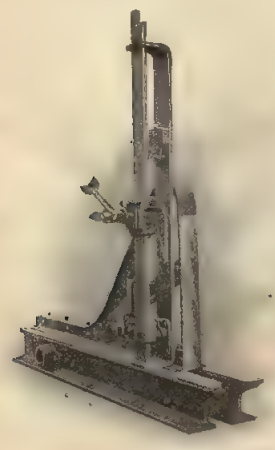


FIG 2622.

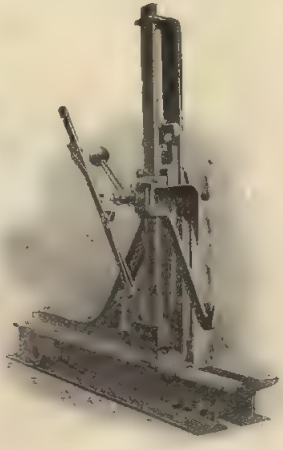


FIG. 2623.

Knight's Ideal Sawmill Dogs are too well known among mill men to require a detail description of their operation. We wish, however, to call your attention to the improved locking mechanism on the Single Dog, an arrangement by which the dog bit is locked at any point as it is forced into the timber. This device is controlled by the power lever and is entirely automatic

The Knight's Ideal Duplex Dog resembles in design the Single Dog, differing only in that it catches the log from above and below. The lower dog, located between the guide and side bars, is entirely automatic, no adjustment being necessary to bring it into position to hold either a log or cant. It is controlled by the power lever, and by requiring no extra movement to operate, can be handled with the same speed as the Single Dog, thus making it the best general purpose dog there is on the market.

These machines are built in five sizes, as follows:

Number.	Mills Used On.	Height.	Size Guide Bar.	Size Slide Bar.	Size Dog Bit.	Slide Heads.	Weight. Single.	Weight. Duplex.
No. 1	Pony	35"	3" x ⅛"	3" x ¼"	1½" x ½"	Cast.	60 lbs.	80 lbs.
No. 2	Medium	41"	3½" x ⅛"	3½" x ⅜"	2" x ⅝"	Cast.	95 lbs.	110 lbs.
No. 3	Heavy	45"	4" x ⅜"	3" x ⅜"	3½" x ⅝"	Cast.	115 lbs.	125 lbs.
No. 3 Special	Heavy Steam Feed	49"	4" x ⅜"	3" x ⅜"	3½" x ⅝"	Forged Steel.	135 lbs.	150 lbs.
No. 4	Extra Heavy	51"	5" x ¾"	3½" x ¾"	3½" x ¾"	Forged Steel.	175 lbs.	225 lbs.

Machines illustrated are Left Hand.

COMPLETE SAWMILLS.

SIZE T—SINGLE MILL WITH 12-FOOT CARRIAGE.

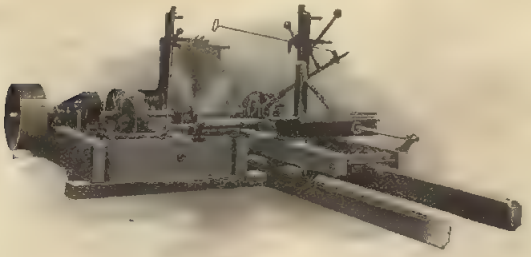


FIG. 2621.

Adaptability to modern requirements, simplicity, strength, first-class material and workmanship have been the motto in the design and construction of the Knight Mills, which are built in 9 sizes, suitable for use in connection with from 10 to 100 H. P. Engines.

Owing to the many sizes of mills and the numerous combinations under each size, detail specifications are omitted here for want of space, but cheerfully furnish circulars giving complete specifications and illustrations of any size mill upon application.

In requesting estimates on complete mills, kindly state as fully as possible the condition under which machinery is to be operated, giving kind of timber to be cut, average diameter and length of logs and the amount of power available. When complete plants with power are wanted give the number of feet which it is desired to cut per day.

THE LAMBERT

Model 7. 34 H.P.
$2000

Our line is complete. We will make the following models for the season of 1906

MODEL A—16 H. P. Runabout	List $	900
MODEL 4—Side entrance touring car	"	1050
MODEL 5— " " " "	"	1200
MODEL 6— " " " "	"	1500
MODEL 7— " " 4-cylinder car	"	2000
MODEL 8— " " 4- " "	"	3000

Our Transmission

We also are manufacturing a line of trucks.

Write for our Latest Catalogue describing in detail all of the above models.

The Buckeye Mfg. Co.

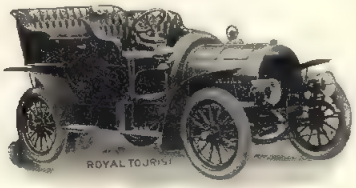
Anderson, Indiana

Members American Motor Car Manufacturer's Association Chicago

ROYAL TOURIST

POINTS

Runs quietly. Costs less for repairs than any motor car built anywhere. Steers easily. Perfect control of motor. Certainly is fast. Is built with care.



We have a full description of 1906 model ready to mail to you if you will send us your address. Will also mail booklet explaining performance of '06 model in Vanderbilt Trial Race.

The Royal Motor Car Co.

CLEVELAND, OHIO

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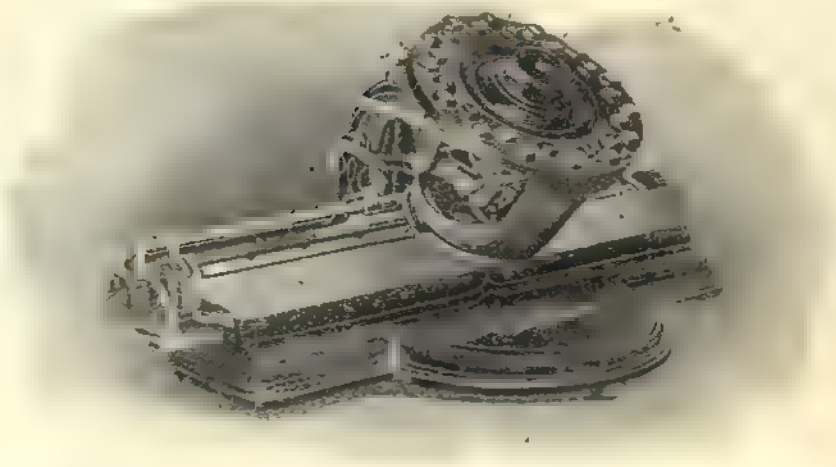
Typewriters.



Lambert Typewriter, with Oak Case, ... Each $25.00

Weight, 6¼ lbs. with Case.

Points of Superiority.

It Writes more beautifully than any other machine without exception or qualification.

The Alignment is always absolutely perfect.

It Prints from the type direct, not through a ribbon, consequently prints clean-cut letters.

The Type is self-inking and self-cleaning; it never becomes fouled.

There are Only 125 Parts to this machine—other Typewriters have from 1,500 to 2,000 parts.

You Know Each Complication adds an element of weakness.

The "Lambert" is well made, neat, light and durable

Weighs only five pounds.

The Type-Ring is the only part subject to wear. A full new set of type for only ONE DOLLAR.

The "Lambert" is a fascinating machine, easily comprehended and readily learned—No former experience required.

The Book of Instructions, which is furnished with each Typewriter, will instruct thoroughly and well. A teacher is unnecessary.

Don't Criticise The "Lambert" Because it is Small. A well made watch will keep as good time as Grandfather's Clock

The Typewriter is novel in appearauce, yet you w: l soon grow to like it, because of its neat work and simplicity.

The "Lambert" will do work that cannot be done with any other machine in existence. **Writes regular form, back-hand and spencerian styles.**

This Machine can be well made and sold for a small amount of money, **because it has few parts, and is so simple.**

Speed of 100 Words per minute can be attained on the "LAMBERT."

It Will Do Better Work than any $100.00 Typewriter.

You Take No Chances. A written guarantee is given with every machine.

Use Modern Methods.

Autograph Letters are unbusinesslike and out of date.

THE COVERT

A POWERFUL RUNABOUT FOR CITY OR COUNTRY

Is made many wonderful touring records last season, but will surpass them all this season The 1900 model is a wonder on the roads.

If you want a light and reliable car for a low price the Covert fills the bill.

It has an upright motor, sliding gear transmission, shaft drive. It is easily the most comfortable runabout on the market, for it has a long wheel base and wonderfully easy springs.

Price, f.o.b. Lockport . . $650

Immediate Deliveries Write for Catalog

COVERT MOTOR VEHICLE COMPANY, RICHMOND ST., LOCKPORT, N.Y.

QUEEN

MODEL "E." $1000.00

16 H. P. double-cylinder opposed type, automatic coilers, noiseless, powerful and durable. Individual front seats, roomy side entrance tonneau. Unequalled for easy riding qualities. Finish and upholstering equal to the $2000.00 type. Write for beautifully illustrated catalogue describing our various models—every one a queen

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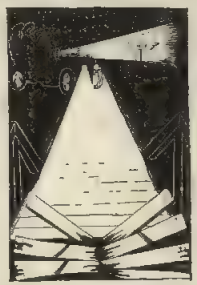

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THE IMPERIAL-LYON

Automatic Lamp Adjuster

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IMPERIAL BRASS MFG CO.
242 JEFFERSON STREET CHICAGO

LANE STEAM TOURING CARS

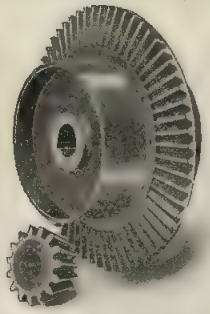
Steel Chassis, full aluminum body, compound engine and condenser. No heat under seats. All functions pertaining to power generation automatic.

A new type of boiler possessing the economy and progressive heating advantages of the flash, but carrying the constant pressure and having reserve of power common to boilers having a water level

PRICE, $2250. Manufactured by

LANE MOTOR VEHICLE CO.
POUGHKEEPSIE NEW YORK

BROWN-LIPE GEARS



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Sliding gear transmissions

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Gaining in Popularity

BECAUSE OF THEIR MERIT

HAVE YOU EXAMINED THEM?

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CINCINNATI, OHIO

BUFFALO, N. Y.

ST. CATHARINES, ONTARIO

Broad Axes.

Lightning, California Pattern.

Refined Cast Steel, Gold Bronzed, Polished Bit.

	Code Abatrons.	Per Dozen
No. 10—Width of Cut 13 to 14 In., Weight, 7 to 7½ lbs.,		$36.00

Half Dozen Assorted in a Case

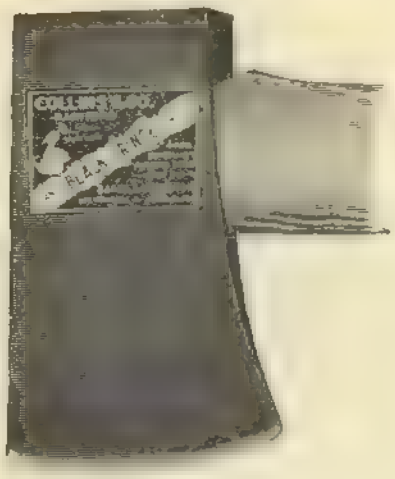
Hunt's.

Superior Cast Steel, Black Finish, Polished Bit.

Weight, Assorted, lbs.,	5 to 7	7 to 9
Code	Abatude.	Abawomm.
Average Weight Per Dozen, lbs.,	76	98
Per Dozen,	$32.00	35 00

Half Dozen Assorted in a Case

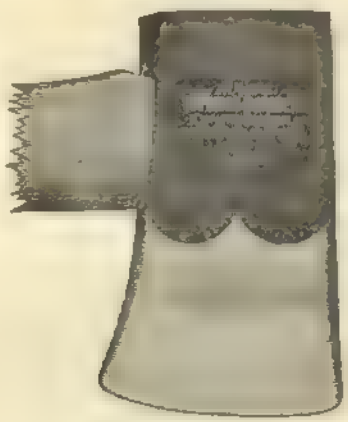
Boys' Axes.



Code Alphabet. | Per Dozen

No. 20—Black Prince, Extra Quality Crucible Steel, Hand Made, Black Finish, 28 In. Handle . $12 00

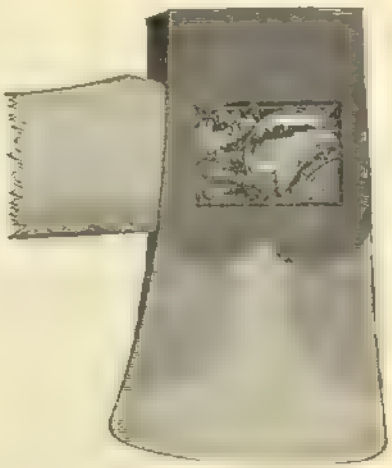
Weight, 45 lbs. Per Dozen.



Code Abaton. | Per Dozen

No. 2—Hunt's, Superior Cast Steel, Black Finish, Polished Bit, Weight 2 lbs., 28 In. Handle, ... $12.00

Weight, 42 lbs. Per Dozen.



Code Abattable. | Per Dozen

No. 200—Niagara, Cast Steel, Red Finish, Polished Bit, Weight 2 lbs., 28 In. Handle, ... $9.00

Weight, 40 lbs. Per Dozen.

One Dozen in a Case.

BAKER & HAMILTON

Double Bitted Axes.

Rob't Mann's, Unhandled.

Humboldt Pattern.

Code Abacus		Per Dozen
No. 270—Best Cast Steel, Gold Bronzed, Polished Bit,	. . .	$15.00

Young's Pattern.

Code Crescent		Per Dozen
No. 280—Best Cast Steel, Gold Bronzed, Polished Bit,	. . .	$15.00

California Reversible Pattern.

Code Absolos.		Per Dozen
No. 290—Best Cast Steel, Gold Bronzed, Polished Bit,	. . . . .	$15.00

Weights:

3, 3¼, 3½, 3¾, 4, 4¼ and 4½ lbs.

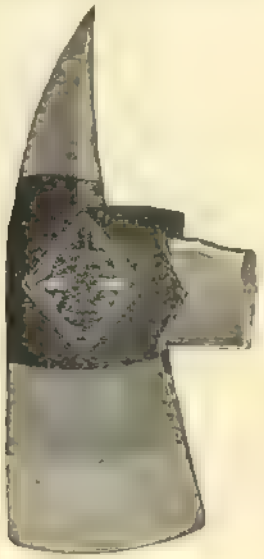
One Dozen in a Case; Shipping Weight, 90 lbs Per Case.

Can be furnished Handled with 36 to 44 L. Handles. When Ordering Specify Length of Handle Desired.

Freighters' Axes.

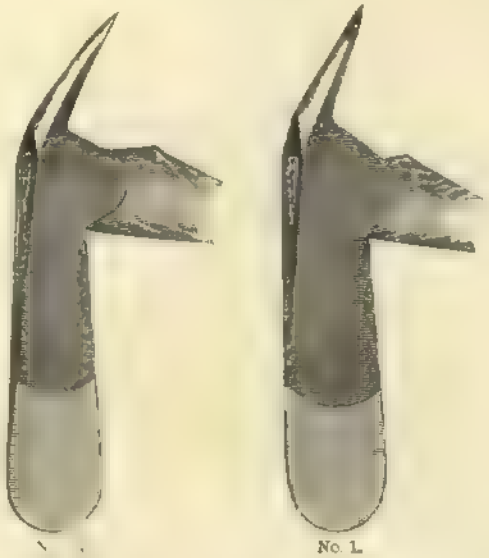
Code Word. Per Doz.
No. 5 Defiance, Cast Steel, Gold Bronzed, Polished Bit, Weight 3 lbs., 32 In. Handle, $12.00
Weight, 48 lbs. Per Dozen.
One Dozen in a Case.

Fireman's Axes.



Code Word. Per Dozen
No. 2 Lightning, Refined Cast Steel, Painted Red, Polished Pick and Bit, Weight 4 to 5 lbs., $24.00
Weight, 70 lbs. Per Dozen.

Ice Axes.



Code Word. Per Dozen
No. 144 Wood's, Chicago Pattern, Extra Cast Steel, Painted, 2½ In. Blade, 30 In. Handle, Weight 4 lbs. $30.00
Weight, 60 lbs. Per Dozen.

Code Word. Per Dozen
No. 1—Wood's Southern Pattern, Extra Cast Steel, Painted, 2½ In. Blade, 30 In. Handle, Weight 3½ lbs. 27.00
Weight, 37 lbs. Per Dozen.

One Dozen in a Case.

LIPPINCOTT INDICATORS, REDUCING WHEELS AND PLANIMETERS.

ENGINE INDICATOR.

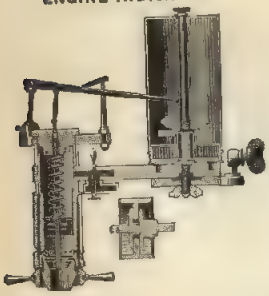


FIG 887.

REDUCING WHEEL.

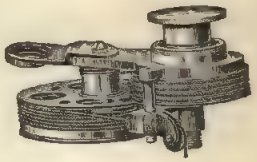


FIG. 888.

Price, Engine Indicators	each	60.00
Price, Reducing Wheels	each	15.00

Each Indicator is packed in a handsome hardwood case, velvet lined and trimmed with nickel plated handle and fittings. Price includes Indicator with three springs, two straight-way cocks, scale, cord and metallic points.

PISTON SPRING.

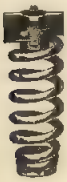


FIG. 889.

PLANIMETER.

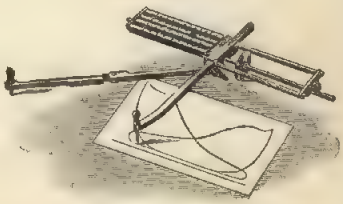


FIG. 890.

Price, Springs	each	5.00
Price, Planimeters	each	18.00

The Planimeter is packed in a velvet lined morocco leather case.

Laib Co.
318
Louisville Ky.

TACHOMETERS.

STATIONARY.

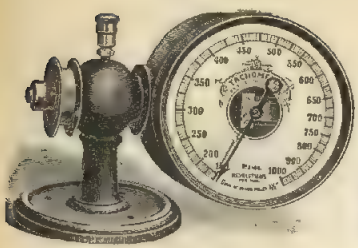


FIG. 883.

STATIONARY, RECORDING.

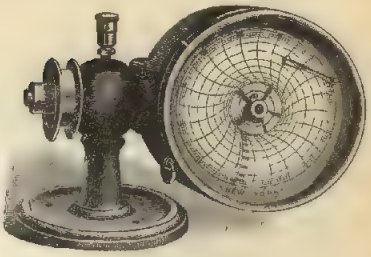


FIG. 884.

Size, Dial.....inches	10	$7\frac{1}{2}$	$5\frac{1}{2}$
Price, Stationary.....each	.....	60.00	55.00
Price, Stationary, Recording.....each	120.00	.....	.....

Stationary Tachometers are for revolutions up to 2,000 per minute.

PORTABLE.

SINGLE SCALE.

FIG. 885.

TRIPLE SCALE.

FIG. 886.

Size, Dial.....inches	3
Length.....inches	10
Price, Single Scale.....each	55.00
Price, Triple Scale.....each	60.00

In ordering, STATE SPEED REQUIRED.

Derringers

Colts.

Remington.

Caliber	Each
.41 R. F.—Nickel, 2½ inch Barrel,	$6.00
.41 R. F.—Blued, 2½ inch Barrel,	6.00

Caliber	Each
.41 R. F.—Blued, 3 inch Barrel,	$6.25

Savage Automatic Pistol

Savage Automatic —.32 Caliber, Rimless, Smokeless, Blue Finish, Capacity of Magazine 10 Shots, Length over all 6½ inches, ... each, $15.00
Extra Magazines, ... each, 1.00

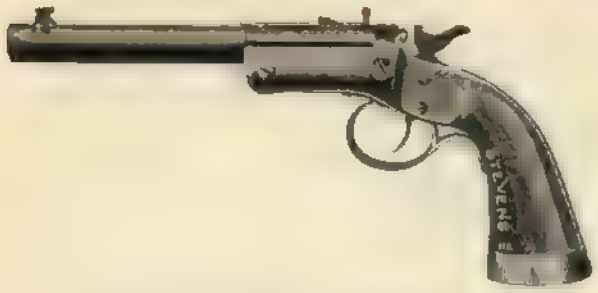
Luger Automatic Pistol

Caliber	Each
7.65 M/M (Cal. .30), Weight 1 lb. 13 oz., Length 9 inches, Length of Barrel 4⅝ inches, Maximum Range 1950 Yards, Point Blank Range 110 Yards, Penetration ⅓ inch Sheet Iron at 50 Yards, ...	$25.00

Caliber	Each
9 M/M (Cal. .354), Weight 1 lb. 13 oz., Length 8½ inches, Length of Barrel 4 inches, Maximum Range 1060 Yards, Point Blank Range 110 Yards, Penetration ¼ inch Sheet Iron at 50 Yards, ...	$25.00

One Extra Magazine with Each Pistol

Stevens Pistols



No. 35, Off-Hand Target Model.

.22 and **.25** Calibers.

Round Barrel, Octagon Breech, Nickel Plated Frame Walnut Stock, Sporting Rear and Bead Front Sights.

Length	Each
6 inch Barrel,	$7.50
8 inch Barrel,	8.50
*10 inch Barrel,	9.50

No. 40, New Model Pocket or Bicycle.

.22 Long Rifle, **.25** Stevens and ***.32** Long Calibers.

Round Barrel, Detachable Skeleton Stock, Nickel Plated Stock and Frame, Globe and Folding Peep or Open Sights

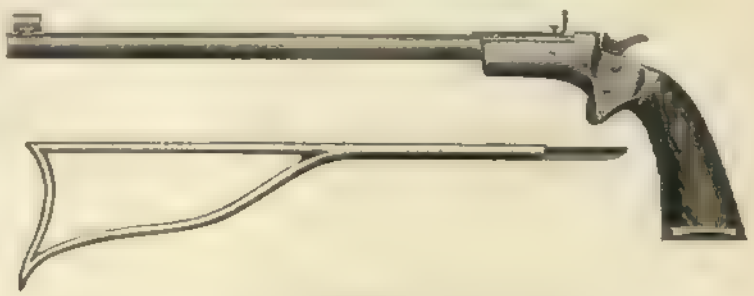
Length	Each
10 inch Barrel,	$9.25
12 inch Barrel,	10.00
*15 inch Barrel,	11.25
*18 inch Barrel	12.50

No. 41, Tip-Up Model.

.22 Short Rim Fire Cartridge.

Round Barrel, Octagon Breech, Nickel Plated Frame, Plain Walnut Grip, Open Sights.

Length	Each
3½ inch Barrel,	$3.00



No. 42, Reliable Pocket Model.

.22 Long Rifle and .25 Stevens Cartridge.

Round Barrel, Octagon Breech, Nickel Plated Frame and Detachable Skeleton Stock, Globe and Peep Sights, or Open Sights

Length	Each
10 inch Barrel,	$8.25

Peep Rear

Globe Front

No. 43, Diamond Model.

.22 Long Rifle R. F. Cartridge.

Round Barrel, Octagon Breech, Nickel Plated Frame, Long Plain Walnut Grip Stock.

Size	Each
No. 1 6 inch Barrel, with Globe Front and Peep Rear Sights, Weight 8¼ oz.,	$5.00
No. 2— 6 inch Barrel, with Open Sights, Weight 8¾ oz.,	5.00
No. 4—10 inch Barrel, with Globe Front and Peep Rear Sights, Weight 11 oz.,	7.50
No. 5—10 inch Barrel, with Open Sights, Weight 11 oz.,	7.50

* Not Carried in Stock, from Factory only.

Automatic Pistols.

Colts.

	Each
Colts, .32 Caliber 4 In Barrel Blued Finish Detachable Magazine, Capacity of Magazine 8 Shots, Shoots 32 Caliber Special Smokeless Cartridges, Weight 1 lb. 7 oz.,	$20 00

Sectional Cut Showing Loaded Magazine and Mechanism.

Luger.

	Each
Luger, 30 Caliber 4½ In Barrel, Blued Finish, Detachable Magazine, Capacity of Magazine 8 Shots, Shoots 30 Caliber Special Smokeless Cartridges Weight 1 lb 13 oz Complete with 2 Magazines,	$25.00

Luger Carbine, "Take Down."

	Each
Luger, 30 Caliber 12 In Barrel, Blued Finish Fitted with Target Front Sight, Detachable Magazine, Capacity of Magazine 8 Shots, Shoots 30 Caliber Special Smokeless Cartridges, Weight 4 lbs , Complete with 3 Magazines	$50 00

The Luger Pistol and Carbine has a Velocity of 1200 Feet per Second. The Range is about 2000 Yards

In a recent test at Washington, D. C. by the Ordnance Department, the Luger Met all the Requirements and received the Unanimous Approval of the Members of the Board. Proper Use of the Toggle System of Locking Cartridges from the Magazine, Ease of Handling, Weight, Range, Accuracy, the Balance and the Rapidity of Fire.

Revolvers.

Colts.

New Pocket.

6 Shot, Side Shell Ejector, Double Action

		Each
32	Cal. Long Colts, C. F., 2½, 3½ and 6 In. Barrel,	$14.00
32	Cal. S. & W., C. F., 2½, 3½ and 6 In. Barrel,	14.00

New Police.

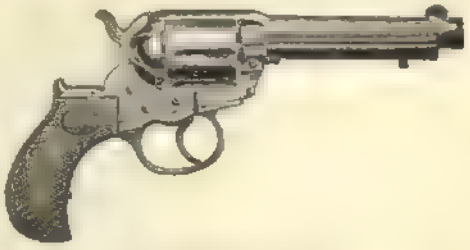
6 Shot, Side Shell Ejector, Double Action.

		Each
32	Cal. Long Colts, C. F., 2½, 4 and 6 In. Barrel,	$16.00
32	Cal. Colts, New Police, C. F., 2½, 4 and 6 In. Barrel	16.00

New Army and Navy.

6 Shot, Side Shell Ejector, Double Action

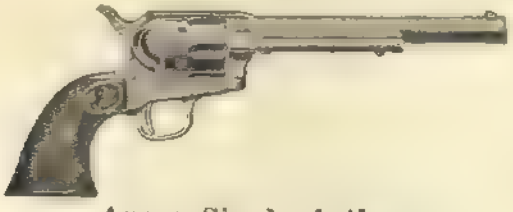
		Each
38	Cal. Long Colts, C. F., 3, 4½ and 6 In. Barrel,	$18.00
41	Cal. Long Colts, C. F., 3, 4½ and 6 In. Barrel,	18.00



Double Action.

6 Shot, Rod Ejector, Double Action.

		Each
38	Cal. Long Colts, C. F., 4½ and 6 In. Barrel,	$14.00
41	Cal. Long Colts, C. F., 4½ and 6 In. Barrel,	14.00



Army, Single Action.

6 Shot, Rod Ejector, Single Action.

		Each
32-20	Cal. Long Colts, C. F., 4¾, 5½, and 7½ In. Barrel,	$16.00
38-40	Cal. Long Colts, C. F., 4¾, 5½, and 7½ In. Barrel,	16.00
41	Cal. Long Colts, C. F., 4¾, 5½, and 7½ In. Barrel,	16.00
44-40	Cal. Russian, C. F., 4¾, 5½, and 7½ In. Barrel,	16.00
45	Cal. Colts, C. F., 4¾, 5½ and 7½ In. Barrel	16.00

Bisley Model, Single Action.

6 Shots, Rod Ejector, Single Action.

		Each
32-20	Cal. Long Colts, C. F., 4¾, 5½ and 7½ In. Barrel,	$18.00
38-40	Cal. Long Colts, C. F., 4¾, 5½ and 7½ In. Barrel,	18.00
41	Cal. Long Colts, C. F., 4¾, 5½ and 7½ In. Barrel,	18.00
44-40	Cal. Russian, C. F., 4¾, 5½ and 7½ In. Barrel,	18.00
45	Cal. Colts, C. F., 4¾, 5½ and 7½ In. Barrel,	18.00

All Colts Revolvers W. I. Be Furnished Blued Steel Unless Otherwise Specified.

Steam Whistles

No. 160—Low Pressure, For Air or Steam

For Motor Boats, Traction Cars, Signal Systems, etc. Intended for Pressure not greater than 20 Pounds nor less than Three Pounds. Produce a clear, harmonious sound.

Diameter, Inches	... 1½	2	2½	3
Each	. $4 25	4.90	6.85	14.00

No. 441—Brass Steam, With Lever

The Bell can be Lowered or Raised to suit different Steam Pressures by Loosening the Acorn at the top and Screwing the Bell Up or Down.

Diameter, Inches	1	1¼	1½	2
Pipe Connection, Inches	¼	¼	⅜	½
Each	$3 10	3.75	4.00	5 50

Diameter, Inches	2½	3	4	6
Pipe Connections, Inches	¾	¾	1¼	1½
Each	$6.50	8.50	15.00	33 00

No. 447—Single Bell Chime

Bronze Bells, Cast in One Piece. They give Clear, Bell-like Musical Sounds. Are well made and perfectly tuned.

Diameter, Inches	1½	2	2½
Pipe Connection, Inches	⅜	½	¾
Each	$7 00	10 00	13.00

Diameter, Inches	3	4	6
Pipe Connections, Inches	¾	1¼	1½
Each	$16.00	28.00	60.00

Whistle Valve

No. 444—Whistle Valve

All Brass, For Working up to 200 Pounds

Inches	⅜
Each	$2.00

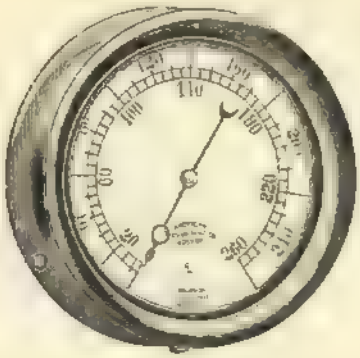
Pop Safety Valves

No. 433—Top Outlet

For Stationary, Portable and Marine Steam Boilers, For Working Pressures up to 250 Pounds.

Inch Pipe	⅜	½	¾	1	1¼	1½	2
Each	$5 50	6 00	6.50	7 50	9 00	11 50	18 00

Steam Gauges



Steam or Pressure

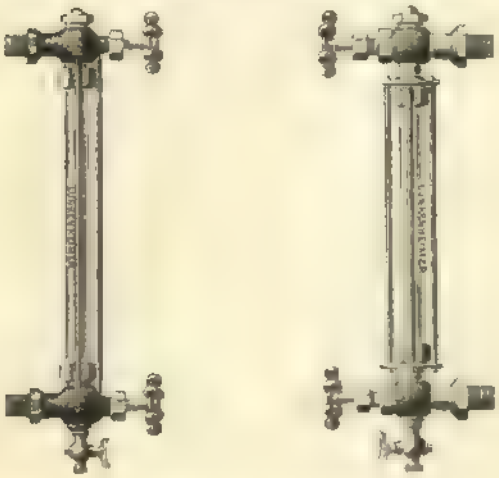
These Gauges are adapted for Steam, Air, Gas, Water and any Fluid that will not affect Brass

Prices include Cock for each Gauge

Size Dial	Each
2½ in., Iron Case, Brass Ring, 30 and 60 Pound Pressures	$6 00
3½ in., Iron Case, Brass Ring, 30, 60, 100, 160 and 200 Pound Pressures	7 00
5 in., Iron Case, Brass Ring, 100, 160 and 200 Pound Pressures	8 00

Guaranteed only when properly connected with Siphon

Water Gauges



No. 459 No. 460

Part Finished, Bronze Body

For Working Pressures up to 200 Pounds

Size Glass, Inches	½	⅝	¾
Size Connections, In. Pipe	⅜	½	¾
No. **459**—Two Rods, Each	$2 75	3 00	6 00
No. **460**—Three Rods, Each	3 50	4 00	8 00

Water Gauge Glasses

Moncrieff Gauge Glasses

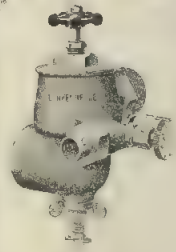
For Water Gauges

Length, Inches	10	12	14	16
½ in. Diam., Per Doz	$3.00	3.60	4.20	4.80
⅝ in. Diam., Per Doz	3 00	3 60	4 20	4 80
¾ in. Diam., Per Doz	3 60	4.32	5 16	5.88

Length, Inches	18	20	22	24
½ in. Diam., Per Doz	$5 40	6 00	6 60	7.20
⅝ in. Diam., Per Doz	5 40	6 00	6 60	7.20
¾ in. Diam., Per Doz	6 60	7 44	8 16	8 88

Compression Gauge Cocks

No.	Each
466—½ in. Pipe Thread, Regrinding Pattern	$1.30



LUNKENHEIMER
Generator Valves

Will positively outlast any other make.

No other make embodies as many important features or is as reliable.

LEFT HAND PATTERN

Made in either right or left hand pattern to facilitate connection.

Tension of disc spring easily regulated while engine is running

Lift of disc regulated by wheel at top which also controls speed of engine.

Easy to operate and guaranteed to give perfect satisfaction.

If your local dealer cannot furnish them, notify us.

Write for Generator Valve Booklet, free for the asking.

The LUNKENHEIMER CO.

Largest Manufacturers of high grade Engineering Specialties in the World

GENERAL OFFICES AND WORKS

CINCINNATI, OHIO, U. S. A.

NEW YORK, 26 Cortlandt St. — BRANCHES — LONDON, S. E., 35 Great Dover St

We manufacture a complete line of Iron and Brass Valves, Lubricators, Injectors, Whistles, Automobile Lubricators, Cocks, Ejectors, Priming Cups, Oil and Grease Cups, Water Columns and Gauges, Fittings, Etc. 4 A.T.J.

RIGHT HAND PATTERN

SELF-FEED GANG RIP SAW, OR DOUBLE EDGER.

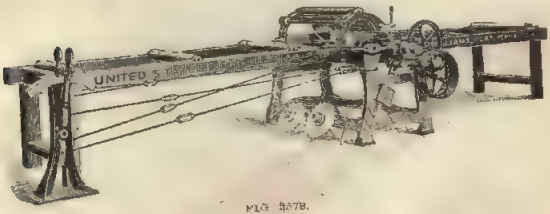


FIG. 3578.

The above cut shows a right-handed machine. Built in two sizes, as follows:

No. 1. -Will cut stock up to 26 inches wide and 4 inches thick. Diameter of saws, 14 inches. Pulley on arbor, 8 inches in diameter by 8½ inches face, and should run 2,600 revolutions per minute. Weight, 1,600 pounds.

No. 2.—Will cut stock up to 30 inches wide and 4 inches thick. Diameter of saws, 14 inches. Pulley on arbor, 8 inches in diameter by 8½ inches face, and should run 2,600 revolutions per minute. Weight, 1,700 pounds.

No. 2 IMPROVED JOINTER OR HAND PLANER.

Patented Aug. 23, 1892.

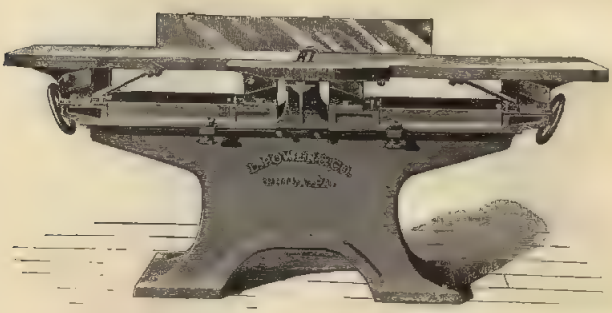


FIG. 2077.

Made in four sizes, 12″, 16″, 20″, 24″.

Steel-plated tables, seven feet long.

This is a late design machine, and not excelled, if equaled, by any made. Cutter-head forged steel, slotted on two sides. Patented extension of receiving table, giving support in rabbeting, panel raising, etc. Steel plated tables, small opening at cutter-head.

Mannlicher (Haenel) Repeating Rifles

NEW MODEL, 9 M/M OR .354 CALIBER.

Can be loaded with or without Magazine Clip or as a Single Loader.

		Each
New Model	Extra Finish, Raised Matted Rib, Half Octagon Barrel, 26 or 28 inch, Sling Swivels, Hair Trigger, Checkered Pistol Grip, all Bright Parts, Matted, Weight 7½ Pounds,	$50.00

SPORTING RIFLE, 8 M/M OR .315 CALIBER.

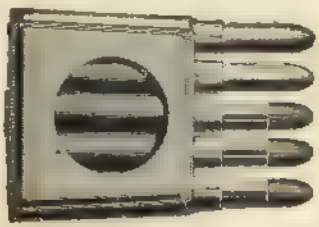
No		Each
1	Extra Finish, Raised Matted Rib, Half Octagon Barrel, 24, 26 or 28 inch, Sling Swivels, Hair Trigger, Checkered Pistol Grip, Double Reversible Front Sight, Weight 7 Pounds,	$40.00
2	Fine Finish, Octogon Barrel, 24, 26 or 28 inch, Matted Rib, Checkered Pistol Grip, Hair Trigger, Sling Swivels, Weight 7 Pounds,	30 00
3	Plain Finish, Round Barrel, 24, 26 or 28 inch, Plain Pistol Grip, Shot Gun Butt, Weight 7 Pounds,	25.00

CARBINE, 8 M/M OR .315 CALIBER.

		Each
Carbine	Sporting Finish, Round Protected Barrel, 18 inch, Sling Swivels, Range 3000 Yards,	$20.00

CARTRIDGES.

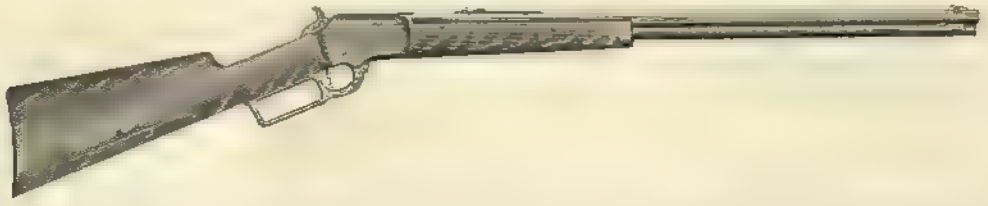
For Mannlicher Repeating Rifles and Carbines.



		Per 100
9 M/M	Cartridges, Point Blank Range 300 Yards, Velocity 2000 feet per second, 44 Grains Smokeless Powder, Bullet Weighs 280 Grains,	$5.50
8 M/M	Cartridges, Point Blank Range 300 Yards, Muzzle Velocity 2000 feet per second, Penetration 50 inches of Pine,	5.00
Lyman Sights	for all Mannlicher Rifles (Testing and Fitting $1.00 extra),	5 00

Marlin Repeating Rifles

MODEL 1892.



.22 Caliber, Without Adjusting Shoots .22 Short, .22 Long and .22 Long Rifle Rim Fire Cartridges, Rocky Mountain Front and Rear Sights, Magazine Holds 25 Short, 20 Long or 18 Long Rifle Cartridges.

Model	Each
1892—.22 Caliber, Round Barrel, 24 in. Long,	$13.75
1892—.22 Caliber, Octagon Barrel, 24 in. Long,	14 75

.32 Caliber, Without Adjusting Shoots .32 Short, .32 Long Rim Fire and by changing Firing Pin, .32 Short and .32 Long Center Fire Cartridges. Rocky Mountain Front and Rear Sights, Magazine Holds 17 Short Cartridges, 14 Long or Long Rifle R. F. or C. F.

Model	Each
***1892—.32 Caliber, Round** Barrel, 24 in. Long,	$13.75
***1892—.32 Caliber, Octagon** Barrel, 24 in. Long,	14.75

MODEL 1893.

Grade **A** **.25-36, .30-30, .32** Special, **.32-40, .38-55** Calibers, for **Smokeless** Powder, H. P. Rocky Mountain Front and Rear Sights, Standard Magazine, Gives 10 Shots at One Loading.

Model	Each
1893A—Round Barrel, Special Smokeless Steel, 26 in. Long,	$16.50
1893A—Octagon Barrel, Special Smokeless Steel, 26 in. Long,	17.00

Add $4 00 each to Above List for Take Down.

Grade **B**— **.32-40** and **.38-55** Calibers, for **Black** Powder Only. Rocky Mountain Front and Rear Sights Standard Magazine Rifle, Gives 10 Shots at One Loading.

Model	Each
***1893B—Round** Barrel, 26 in. Long,	$13 35
***1893B—Octagon** Barrel, 26 in. Long,	14.40

Add $4.00 each to Above List for Take Down.

MODEL 1894.

.25-20, .32-20, .38-40 and **.44-40** Calibers, for **Black** or **Smokeless** Powders. Rocky Mountain Front and Rear Sights, Standard Magazine (24 in.), Gives 14 Shots at One Loading.

Model	Each
1894—Round Barrel, 24 in. Long,	$13.35
1894—Octagon Barrel, 24 in. Long,	14 40

Add $4 00 each to Above List for Take Down.

* Not Carried in Stock, from Factory only.

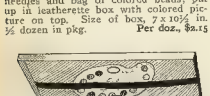
For Extras to above See Page 1426.

For Extra Parts See Page 1491

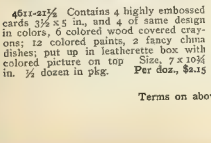
KINDERGARTEN OUTFITS—Cont'd.

4607-21½ Sewing Outfit. Six perforated and embossed cards 4¼ x 6½ in., 6 skeins embroidery floss, box of needles and bag of colored beads; put up in strong card board box with highly colored picture on top. Size of box, 8 x 10 in. ½ dozen in pkg. **Per doz., $2.15**

4608-21½ Painting Outfit Contains 4 black outlined pictures 6¾ x 9¾ in., and 4 with same designs highly colored showing how pictures should be painted, 10 colored paints in tin tray, 2 china dishes; put up in strong card board box with colored picture on top. Size of box, 9 x 10 in. ½ dozen in pkg **Per doz., $2.15**

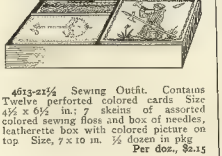


4610-21½ Sewing Outfit. Contains 4 lithographed colored pictures 6½ x 8½ in., 4 skeins of embroidery silk, box of needles and bag of colored beads; put up in leatherette box with colored picture on top. Size of box, 7 x 10½ in. ½ dozen in pkg. **Per doz., $2.15**

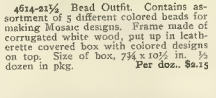


4611-21½ Contains 4 highly embossed cards 3½ x 5 in., and 4 of same design in colors, 6 colored wood covered crayons; 12 colored paints, 2 fancy china dishes; put up in leatherette box with colored picture on top Size, 7 x 10½ in. ½ dozen in pkg. **Per doz., $2.15**

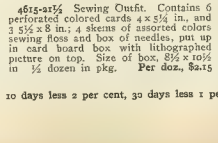
4612-21½ Painting Outfit. Contains 3 highly embossed cards3½ x 5 in., and 3 colored embossed cards showing how cards should be colored, 24 colored paints, 2 china dishes and brush; in leatherette box with colored picture on top. Size, 9¼ x 8¼ in ½ doz. in pkg. **Per doz., $2.15**



4613-21½ Sewing Outfit. Contains Twelve perforted colored cards Size 4½ x 6½ in.; 7 skeins of assorted colored sewing floss and box of needles, leatherette box with colored picture on top Size, 7 x 10 in. ½ dozen in pkg **Per doz., $2.15**

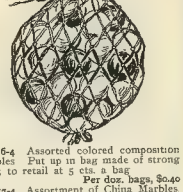


4614-21½ Bead Outfit. Contains assortment of 5 different colored beads for making Mosaic designs. Frame made of corrugated white wood, put up in leatherette covered box with colored designs on top. Size of box, 7¾ x 10½ in. ½ dozen in pkg. **Per doz., $2.15**



4615-21½ Sewing Outfit. Contains 6 perforated colored cards 4 x 5¼ in., and 3 5½ x 8 in.; 4 skeins of assorted colors sewing floss and box of needles, put up in card board box with lithographed picture on top. Size of box, 8½ x 10½ in ½ dozen in pkg. **Per doz., $2.15**

MARBLES IN BAGS.



4616-4 Assorted colored composition Marbles Put up in bag made of strong cord; to retail at 5 cts. a bag

Per doz. bags, $0.40

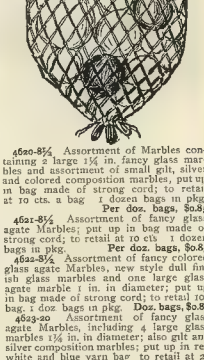
4617-4 Assortment of China Marbles. With colored stripes and dull finish glass marble, put up in bag made of strong cord; to retail at 5 cts. a bag. 1 dozen bags in pkg. **Per doz. bags, $0.40**

4618-4 Assortment of colored China and Fancy Glass Marbles. Put up in bag made of strong cord; to retail at 5 cts. a bag. 1 dozen bags in pkg.

Per doz. bags, $0.40

4619-4 Assortment of white China Marbles with colored stripes. Gilt, silver and assorted colored marbles; put up in bag made of strong cord; to retail at 5 cts. 1 dozen bags in pkg.

Per doz. bags, $0.40



4620-8½ Assortment of Marbles containing 2 large 1¼ in. fancy glass marbles and assortment of small gilt, silver and colored composition marbles, put up in bag made of strong cord; to retail at 10 cts. a bag 1 dozen bags in pkg

Per doz. bags, $0.85

4621-8½ Assortment of fancy glass agate Marbles; put up in bag made of strong cord; to retail at 10 cts. 1 dozen bags in pkg. **Per doz. bags, $0.85**

4622-8½ Assortment of fancy colored glass agate Marbles, new style dull finish glass marbles and one large glass agate marble 1 in. in diameter; put up in bag made of strong cord; to retail 10c bag. 1 doz bags in pkg. **Doz. bags, $0.85**

4623-20 Assortment of fancy glass agate Marbles, including 4 large glass marbles 1¼ in. in diameter; also gilt and silver composition marbles; put up in red white and blue yarn bag to retail at 25 cts a bag. ½ dozen bags in pkg.

Per doz. bags, $2.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Laib Co.
398
Louisville Ky

STEAM ENGINES.

MARINE; SINGLE VERTICAL.

FIG. 1049.

MARINE; DOUBLE VERTICAL.

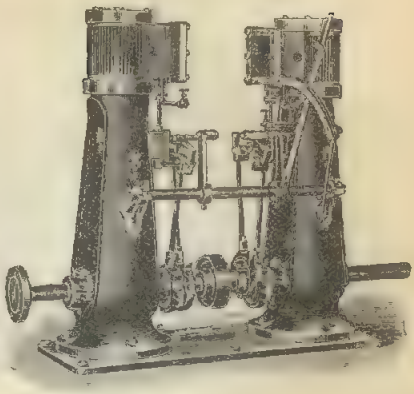


FIG. 1050.

Marine Single Vertical Engines.

Horse Power.	Price Complete, Each.	Size Cylinder, Inches.	Diameter Shaft, Inches.	Height from Floor to Center of Shaft, Inches.	Height to Top of Cylinder, Inches.	Floor Space Required, Inches.	Weight, Pounds.
5	195.00	5x 5	1 1/16	8	39	18x18	260
7	245.00	6x 6	1 5/16	9	47	25x25	500
10	300.00	7x 7	2 3/16	11 1/2	55	28x28	700
14	375.00	8x 8	2 3/16	12 1/2	60	30x30	1100
20	475.00	9x 9	2 5/16	16	66	30x30	1400
25	625.00	10x10	3 1/16	14 1/2	73	36x36	1800
35	800.00	12x12	3 3/16	15	79	42x42	2400
60	1150.00	14x16	5 1/4	16	97	48x18	3800

Marine Double Vertical Engines.

10	400.00	5x 5	1 1/16	8	39	15x 40	525
14	500.00	6x 6	1 5/16	9	47	17x 48	1000
20	620.00	7x 7	2 3/16	11 1/2	55	22x 60	1400
28	780.00	8x 8	2 3/16	12 1/2	60	24x 63	2200
40	1000.00	9x 9	2 5/16	16	66	26x 70	2800
50	1300.00	10x10	3 1/16	14 1/2	73	29x 74	3800
70	1700.00	12x12	3 3/16	15	79	34x 92	5100
120	2400.00	14x16	5 1/4	16	97	42x116	8200

Laib Co.
399
Louisville Ky

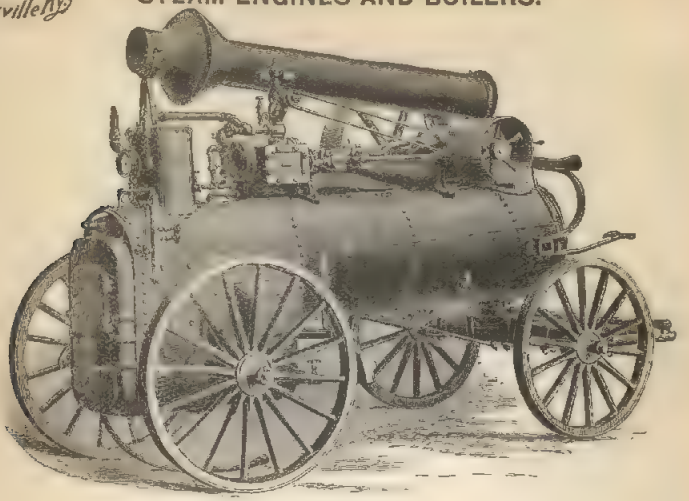


FIG. 1051

Number.	Horse Power.	Cylinder, Diameter and Stroke, Inches.	PULLEYS.		Revolutions, Per Minute.	Diameter of Boiler, Inches.	Length of Fire Box, Inches.	Width of Fire Box, Inches.	Height of Fire Box, Inches.	Number of 3 inch Tubes.	Length of Tubes, Inches.	Weight, Pounds.
			Diameter, Inches.	Face, Inches.								
0	6	4 x 6	14 and 26	6½ and 6½	260	26	34	21	29	17	54	4000
1	8	5 x 8	14 and 32	10½ and 8½	240	28	36	22	32	18	60	4500
2	9	6 x 9	16 and 36	10½ and 9½	200	28	36	22	32	18	60	4800
3	10	7 x 9	16 and 36	10½ and 9½	200	30	38	24	34	22	72	5500
4	12	7 x 10	20 and 44	10½	190	32	38	26	38	26	72	6200
5	15	8 x 10	20 and 44	10½	190	32	44	26	38	26	78	6500
6	20	8 x 12	22 and 48	10½ and 12½	190	34	52	28	38	30	90	8500
7	25	9 x 12	32 and 48	8½ and 12½	190	36	52	30	40	34	96	10000
8	30	10 x 12	32 and 54	8½ and 12½	190	36	52	30	40	34	102	10700
9	35	10 x 15	36 and 60	9½ and 12½	160	40	52	34	44	40	102	12400
10	40	11 x 15	36 and 60	9½ and 12½	160	40	60	34	44	42	120	13800

Prices on application.

Each outfit includes center crank engine, pulleys, governor, throttle, pump, heater, governor belt, oil cups and pet cocks; boiler mounted on wheels, smoke stack, grates, safety valve, steam gauge, water gauge with water column, gauge cocks, whistle, blow-off, check and stop valves, brake, hand suction pump, tool box, driver's seat, tongue, neck yoke, double and whiffle trees.

Marlin Repeating Shot Guns

MODEL 16.

16 Gauge, Take Down, 26 or 28 in. Barrels, Full or Modified Choke or Cylinder Bore, Six Shots

Grade		Each
16A	Special Rolled Steel Barrel, Blued Frame, Rubber Butt Plates, 28 in Barrel only	$25.00
***16B**—	Special Smokeless Steel Barrel, Checkered Pistol Grip and Fore-End,	32.75
***16C**—	Special Smokeless Steel Barrel, Fancy Checkered Walnut Pistol Grip Stock and Fore End, Hand Engraved Receiver and Action,	44.50
***16D**—	High Quality Damascus Steel Barrel Circassian Walnut Stock and Fore-End, Elaborately Engraved Checkered, Gold Plated Screws and Trigger,	95.00

NOTE The regular stock gun will be cylinder bored, and will always be sent unless otherwise ordered Modified and full choked barrels made to order at same price.

MODEL 26.

Model		Each
***26— Regular**	Solid Frame (Non Take Down) Grade A 12 Gauge, 30 or 32 in, Full Choke Barrel, for Smokeless or Black Powder, Straight Grip Stock, Weight 7⅛ lbs, 6 Shots,	$21.00

Model		Each
***26 Brush,**	Solid Frame (Non-Take Down), Grade A, 12 Gauge, 26 in Cylinder Bore Barrel, Straight Pistol Grip Stock, Weight 7 lbs, 6 Shots,	$21.00

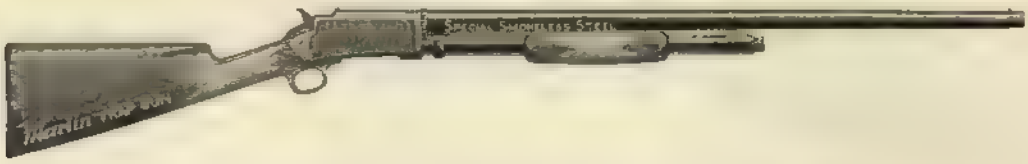
Model		Each
***26 Riot,**	Solid Frame (Non Take Down) Grade A. 12 Gauge, 20 in Barrel, Cylinder Bored for Buckshot, Straight Pistol Grip Stock, Weight 6⅞ lbs., 6 Shots,	$21.00

* Not Carried in Stock, from Factory only.

For Extra Parts See Page 1490

Marlin Repeating Shot Guns

NEW MARLIN TRAP GUN.



New Marlin Trap Gun, 12 Gauge, Take Down, Straight Grip.

This gun is handsome, harmonious and distinctive—it's the best trap gun built. It has Special Smokeless Steel barrel—twice as hard and strong as ordinary steel barrels and unequalled in shooting ability. Buttstocks and fore-arms are imported Circassian walnut, finely modeled with London oil finish and fine hand checking. Regular butt stocks are 14 inches long with 1½ drop at heel and with a large broad butt with hard rubber butt plate. Frames are blued; action parts are highly polished to insure smooth operation. Guns made with any dimensions of stock wanted at slight additional charge.

	Each
New Marlin Trap Gun,	$38.00

MODEL 24.

12 Gauge, **Take Down,** Pistol Grip Stock, Full or Modified Choke or Cylinder Bore, Six Shots

Grade	Each
24A—Special Rolled Steel Barrels, 26, 28, 30 or 32 in.,	$23 25
***24B**—Smokeless Steel Barrels, 26, 28 or 30 in. Checkered Stock and Fore-End.	30 75
***24C** Special Smokeless Steel Barrels, 26, 28 or 30 in., Fancy Figured Walnut Stock and Fore End, Hand Checkered and Engraved,	40 80
***24D**—Highest Quality Damascus Steel Barrels, 26, 28 or 30 in., Circassian Walnut Stock and Fore-End, Elaborately Checkered and Engraved by Hand, Trigger and Screws Gold Plated,	90.00

NOTE—The regular stock gun will be cylinder bored and will always be sent unless otherwise ordered. Modified and full choked made to order at same price.

* Not Carried in Stock, from Factory only.

For Extra Parts See Page 1490.

*EXTRAS FOR MARLIN SHOT GUNS.

Barrel Portion Complete with Magazine	Each
Grade "A" Any Length or Bore,	$13 75
Grade "B" Any Length or Bore,	19 25
Grade "C"—Any Length or Bore,	22.25
Grade "D" Any Length or Bore,	45 00

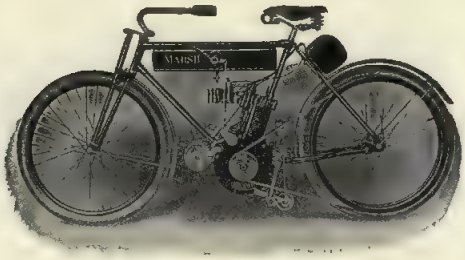
Above are interchangeable and it is not necessary to send Action to Factory

		Each
Engraving	Grade No. 1,	$4.50
	Grade No. 2,	9.00
	Grade No. 3,	13.50
	Grade No. 5,	22 50
	Grade No. 10,	45 00
	Grade No. 15,	67 00

	Each
Checking on Grip and Fore-Arm, Style A,	$4 50
Changing Length or Drop of Stock, to order,	9 00
Selected Walnut Stock and Fore Arm not Checkered,	9.50
Extra Selected Walnut Stock and Fore-Arm, not Checkered, Dull or Polished,	12.00
Checking on Grip and Fore-Arm, Style B,	6 35
Checking on Grip and Fore-Arm, Style C, D, E, F or G,	9.75
Special Smokeless Steel Barrel on Grade A Gun,	6.50
Best 4 Blade Damascus Barrel,	18.00
Silver's Recoil Pad, Fitted,	6.25
Nickel Plated Trimmings,	4 25
Swivels and Sling Strap (Leather),	1 50

* Not Carried in stock, from Factory only

—AGENTS—



The Marsh Model D for 1906 is now ready. Let us book your order for a new sample machine at once.

IMPROVEMENTS

2¼" detachable tires
Aluminum crank case
Automatic carburetor with throttle
Cylinder cut from solid stock, with deep flanges
Motor pulley covered with leather
New muffler (small, light and quiet)
New rotacleneau contact maker, beats the Dutch
Increased power
Reduced weight
Equipped for racing 110 lbs.
Has made miles in 1-3-⅔, better than 56 miles an hour.

With the Metz single and double cylinder machines our line is the most complete offered.

Send for full particulars in regard to Model D.

AMERICAN MOTOR CO., Brockton, Mass.

ASSORTMENT OF 50c. FUR TOYS.

No. 4232-40.

(6 styles. 1-12 doz. each. ½ dozen assorted in box.)

1 Big Fur Cat, will squeak when tail is pressed. Length 12 in. Height 7¼ in

2 Fur Poodle, with squeaking tail and ribbon bows, on iron wheeled platform. Height 9 in. Length 10 in

3 Fur Lamb with Young One, on iron wheeled platform, voice and ribbons Height 8½ in. Length 9½ in.

4 Fur Goat, with ribbon and squeaking tail, on iron wheeled platform. Height 10 in. Length 10½ in.

5 Fur Spitz Dog, with ribbon and squeaking tail, on iron wheeled platform. Height 10½ in. Length 10¾ in.

6 Fur Rabbit on rockers, moves ears and tail. Height 9 in. Width 10 in

½ dozen assorted in box. Per doz., $4.00

ASSORTMENT OF 50c. FANCY TOYS.

No. 4233-42½.

(6 styles. 1-12 doz. each. ½ dozen assorted in box.)

1 Stuffed Cloth Elephant on iron wheels with stuffed Monkey rider Height 10 in. Length 9 in.

2 Stuffed Cloth Elephant on iron wheels with fine red blanket Height 7¾ in. Length 10 in.

3 Fine Cloth and Fur Covered Rooster, with fancy colored feathers, on wood box, with natural voice, nodding head. Height 13 in.

4 Surprise Box containing 6 assorted squeaking heads, with fine picture on front of box. Length 10¼ in. Height 4¼ in.

5 Toy Butcher Shop containing a full assortment of meats and Butcher Height 12 in. Width 10 in

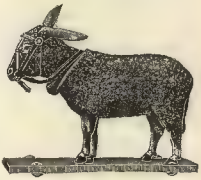
6 Fur Lamb with fine leather harness with red painted doll cart. Height 6½ in. Length 13 in.

½ dozen assorted in box. Per doz., $4.25

ASSORTMENT OF 50c. FANCY TOYS.

No. 4234-45.

(6 styles. 1-12 doz. each. ½ dozen assorted in box.)



1 Cloth Covered Cow with natural voice, on iron wheeled platform. Height 7¼ in. Length 10¼ in

2 Mary and her Little Lamb, on iron wheeled platform, Lamb with voice. Height 9 in Length 7½ in.

3 Dressed Clown and Trick Dog, on drum highly colored, movable, dog and clown. Height 10½ in. Width 6 in.

4 Fur Goat with bell and ribbon and fancy dressed clown rider on iron wheeled platform' Height 10¼ in. Length 8 in

5 Plush Donkey with fine harness and voice, on iron wheeled platform. Height 9 inches. Length 10 in.

6 Fur Goat with voice, bell and ribbon and movable dressed clown rider, on iron wheeled platform. Height 12 in. Length 8 in

½ dozen assorted in box. Per doz., $4.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

TOY WATCHES—Continued.

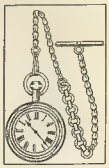
3644-8½ 3645-8½

3644-8½ Assortment of Boy's nickel plated, plain gilt and imitation gun metal watches with chain and charm, moving hands. Diameter 1½ in. 1 dozen assorted in box. **Per doz., $0.85**

3645-8½ Boy's Large Watch, assorted plain gilt and nickel-plated cases, stem winder, moving hands. Diameter 1¾ in. 1 dozen assorted in box **Per doz., $0.85**

3647-8½ Boy's Watches, assortment of embossed gilt, nickel plated and plain hunting cases, with chains and charms, colored and white dials. Diameter 1½ in 1 dozen assorted in box **Per doz., $0.85**

3648-12¾ Boy's Watches, assorted gilt and nickel-plated cases, embossed backs, with chains and novelty charms, moving hands. Diameter 1½ in. 1 dozen assorted in box **Per doz., $1.25**



3649-20 Boy's large Watches, assorted plain gilt and gun metal cases with gilt rim, stem winder, moving hands, heavy chains. Diameter 1¾ in. 1 dozen assorted in box. **Per doz., $2.00**

ASSORTMENT OF 25c. FUR TOYS.

No. 4230-20.

(4 styles. ¾ doz. each. 1 doz. assorted in a box.)

1 Fur Dog, will bark when tail is pressed. Length 8 in. Height 5¼ in.

2 Fur Rabbit on rockers Height 7¼ in Width 7¾ in

3 Fur Goat and Dressed Clown Rider on wheeled wooden platform. Height 8½ in Length, 6 in.

4 Fur Lamb on wheeled platform, with squeaking head and colored ribbons. Height 7 in. Length 6¾ in.

1 dozen assorted in box. Per doz., $2.00

ASSORTMENT OF 35c. FUR TOYS.

No. 4231-22½.

(6 styles. 1-6 doz. each. 1 doz. assorted in a box.)

1 Fur Sheep with young one on iron wheeled wooden platform, lamb with voice and ribbon. Height 6½ in. Length 7 in

2 Fur Goat on iron wheeled platform, goat with voice and ribbon. Height 7¾ in. length 7 in.

3 Fur Rabbit on rockers with ribbon around neck. Height, 7½ in., length, 7¾ in

4 Fur Donkey on iron wheeled platform, squeaking head, with ribbon and bell. Height 8¼ in Length 6¾ in.

5 Fur Poodle with ribbon bows and squeaking tail, on iron wheeled platform. Height 7 in. Length 8 in.

6 Fur Spitz Dog with ribbon and squeaking tail, on iron wheeled platform. Height 7 in. Length 7 in

1 dozen assorted in box. Per doz., $2.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Farriers Hammers

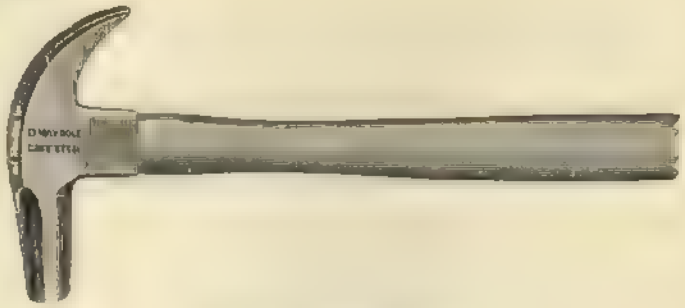
MAYDOLES

Driving, Boston Pattern

Solid Crucible Cast Steel

No.	152
Weight	10 oz.
Per Doz.	$8.00

One-Half Doz. in a Box. Weights do not include Handles

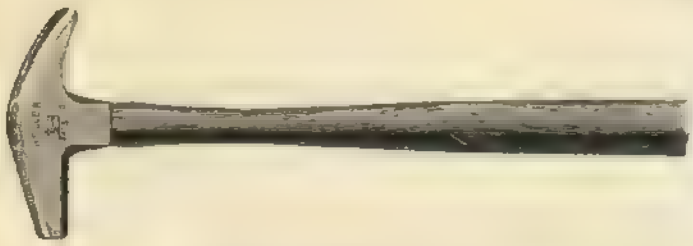


Driving, Round Pattern

Solid Crucible Cast Steel

No.	253
Weight	8 oz.
Per Doz.	$7.00

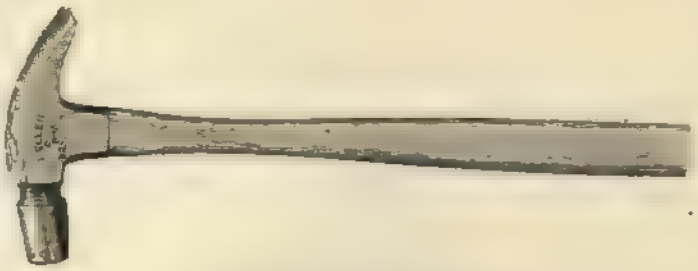
HELLER BROS.



Driving, Regular Pattern

No.	64
Per Doz	$12.00

Weights, 12, 13, 14, 15, 16 and 17 oz., Including Handle



Driving, Heller's Pattern

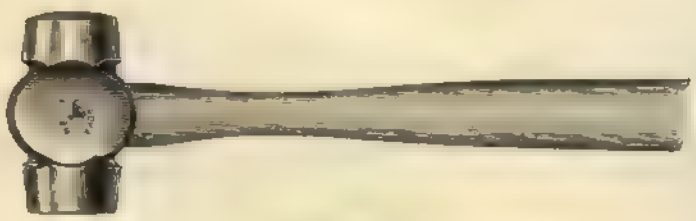
No.	65
Per Doz	$15.00

Weights, 12, 13, 14, 15, 16 and 17 oz., Including Handle

One-Half Doz. in a Box

Cat's Head or Turning

No.	Per Doz
60—Weights, 2 to 3 Pounds, including Handle	$28.80



Rounding

No.	61
Per Doz.	$28.80

Weights, 2 to 3 Pounds, including Handle

Fitting

No.	62
Per Doz	$24.00

Weights, 2 to 3 Pounds, including Handle

One-Quarter Doz. in a Box

Hammers

PICK POINTING OR PROSPECTORS

Solid Cast Steel, Oil Finish

No.	262
Weight	1 lb. 12 oz.
Per Doz.	$15.00

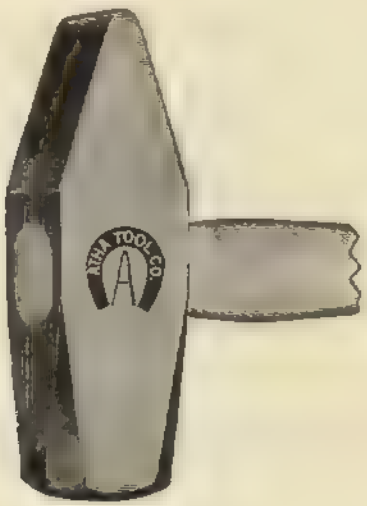
One-Half Doz in a Box. Weights do not include Handles

DRILL SHARPENING

Solid Cast Steel, Handled

No.	260A
Weight	1 lb. 6 oz.
Per Doz.	$16 00

BLACKSMITH'S HAND



Solid Cast Steel, Handled

No.	401	402	403	404
Weight	2 lb	2 lb. 10 oz.	3 lb	3 lb. 8 oz.
Per Doz.	$14 00	15 00	16 00	17 00

One-Third Doz in a Box. Weights do not include Handles

BRICKLAYER'S

Crucible Cast Steel

No.		Per Doz.
162	Weight, 1 lb. 14 oz., Polished	$14.00
562	Weight, 1 lb. 14 oz., Oil Finished	12 00

Weights do not include Handles

SCALING HAMMERS OR BOILER PICKS

Solid Cast Steel

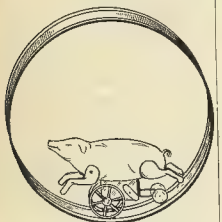
No.	Per Doz.
1070—Weight, 1 Pound, Unhandled	$15.00

MECHANICAL TOYS—Continued.

5460-20 5461-20

5460-20 Mechanical Drumming Bear. Made of heavy tin, painted in natural colors, bear beats drum and cymbals. Height, 3¾ in. ½ dozen in box.
Per doz. $2.00

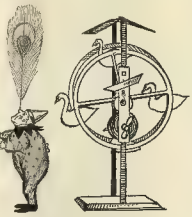
5461-20 Mechanical Walking Bear. Made of dark brown tin, spring power. Height, 4½ in. ½ dozen in box.
Per doz. $2.00



5462-20 Mechanical Pig. Made of tin, painted in bright colors, when wound up pig moves tin hoop along floor. Diameter, 6¾ in. ½ dozen in box.
Per doz. $2.00

5463-20 Mechanical Canary Bird. Made of heavy tin, painted in natural colors, spring power, bird hops along floor. Height, 7 in. ½ dozen in box.
Per doz. $2.00

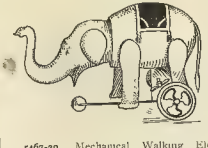
5464-20 Mechanical Walking Duck. Made of tin, painted in bright colors, spring power. Length, 6½ in. ½ dozen in box.
Per doz. $2.00



5465-20 5466-20

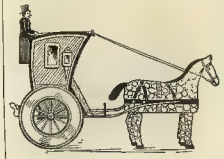
5465-20 Mechanical Walking Clown. Made of tin, painted in bright colors, dressed in fancy colored polka dot clown costume. clown walks along floor balancing feather. Height of clown, 10 in. ½ dozen in box.
Per doz. $2.00

5466-20 Mechanical Toy. Made of tin, painted in bright colors, spring power, center wheel contains 4 ducks, revolves and at the same time makes music. Height, 5¾ in. ½ dozen in box.
Per doz. $2.00



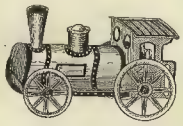
5467-20 Mechanical Walking Elephant. Made of tin, painted in bright colors, elephant walks and shakes head. Length, 6¾ in. ½ dozen in box.
Per doz. $2.00

3945-20 Butterfly Push Toy (with moving wings). The butterfly measures 9 in. Ornamented in ten bright colors. When pushed along the wings move in natural manner, strongly constructed of metal, mechanism is so simple that it cannot get out of order or be easily broken. Length with stick, 29 in. ½ dozen in box.
Per doz. $2.00



5468-20 Mechanical Cab. Made of tin, painted in bright colors, spring power, horses feet move in natural manner. Height, 7¼ in. ½ dozen in box.
Per doz. $2.00

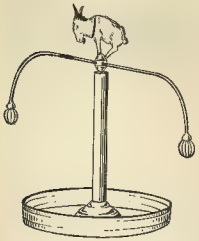
5470-32½ Mechanical Mule and Pump. Made of heavy tin, painted in bright colors, spring power, tail, ears and pump handle move up and down. Length, 7 in. ¼ dozen in box.
Per doz. $3.25



5475-32½ Mechanical Engine. Made of heavy black enamel tin, striped with red and gilt, gilt wheels, spring power. Length, 9½ in. ½ dozen in a box.
Per doz. $3.25

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

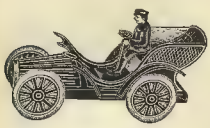
MECHANICAL TOYS—Continued.



5439-20 Balancing Goat on stand Made of tin, painted in bright colors, striped with gold. Height, 9 in. ½ dozen in a box. **Per doz. $2.00**

5441-20 Mechanical Friction Delivery Wagons. Assorted styles, made of tin, painted in bright colors, striped with gold Length, 7 in. ½ dozen assorted in box. **Per doz. $2.00**

5442-20 Mechanical Friction Automobile, made of tin, painted in bright colors, gilt wheels. Length, 5½ in. ½ dozen in box. **Per doz. $2.00**



5446-22½ Mechanical Automobile Made of tin, painted in bright colors. spring power. Length, 6 in. ½ dozen in box **Per doz. $2.25**

5447-22½ 5449-22½

5447-22½ Mechanical Walking Goose Made of heavy tin, painted in bright colors. Height, 5½ in. ½ doz. in box. **Per doz. $2.25**

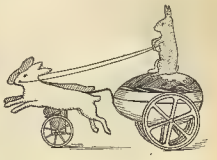
5449-22½ Mechanical Clown. Made of heavy tin, painted in bright colors. when wound up walks on hands. Height, 7 in. ½ dozen in box. **Per doz. $2.25**

5454-20 Mechanical Walking Rooster. Made of heavy tin, painted in bright colors, solid metal feet, spring power. Height, 5¾ in. ½ dozen in box **Per doz. $2.00**

5455-20 Mechanical Horse and Cab Made of tin, painted in bright colors, striped with gold, rubber tires, spring power, moves along floor, horse has a trotting motion Length, 6½ in ½ dozen in box. **Per doz. $2.00**

5456-20 Mechanical Automobile Spring power, runs erratic, made of tin and painted in bright colors. Height, 3¾ in. Length, 4½ in. ½ dozen in box. **Per doz. $2.00**

5457-20 Mechanical Clowns in Wheel Made of tin, painted in bright colors, when wound up toy turns in a circle and clowns turn on center bar. Height, 5¾ in. ½ dozen in box. **Per doz. $2.00**

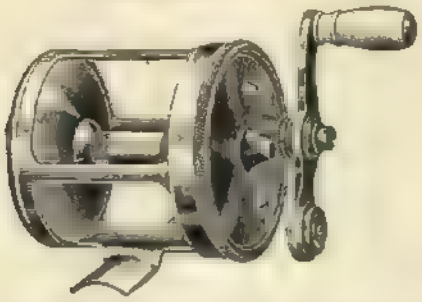


5459-20 Mechanical Rabbit Toy. Made of tin, painted in bright colors, spring power, runs along floor, front rabbits have a running motion. Height, 6 in ½ dozen in box. **Per doz. $2.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Fishing Reels

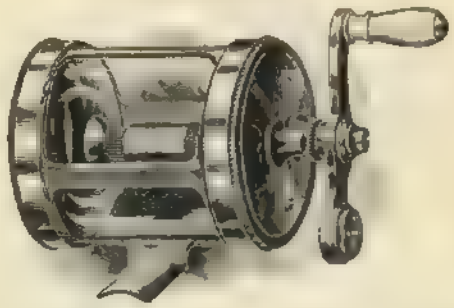
TRIPART.



Quadruple Multiplying, Nickel Plated, Frame Drawn from one piece of Plate Brass, German Silver Spool, Practically in three parts and can be easily taken apart, Steel Pivots and Gears.

No.		Yards.	Diam. Disc.	Each
5-80	—Solid Spool,	80	1¾ inches,	$3 00
5-81	—Free Spool,	80	1¾ inches,	6.00

TAKAPART.

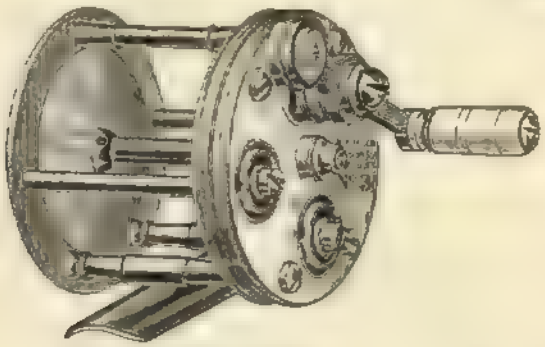


Quadruple Multiplying, Nickel Plated Brass Tubular Frame, German Silver Spool, can be taken apart without the aid of Tools, Steel Pivots and Gears, a High Grade Reel in every respect.

No.		Yards.	Diam. Disc.	Each
4-80	Solid Spool,	80,	2 inches,	$4 00
4-81	—Free Spool,	80,	2 inches,	7.50

In all Free Spool Reels the Reel starts to revolve more quickly at the beginning of the cast, because the Handle and Gears are disengaged During the cast the Spool responds more freely to delicate thumbing because it is Free from the momentum of the Handle

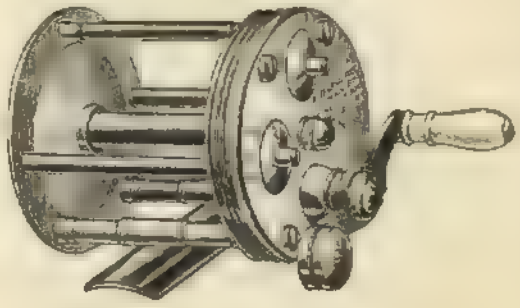
MEEKS.



Meeks German Silver.

Quadruple Multiplying, Made of Finest German Silver, Ivory Handles, Spiral Gear and Anti Friction Bearings, Click and Drag, Balanced Handle.

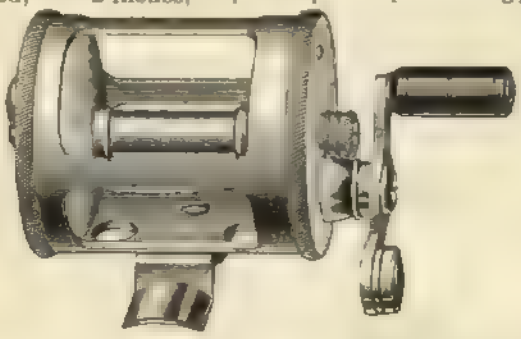
No.		Diam.	Each
3	Regular,	2 inches,	$28.00
3J	—Jeweled,	2 inches,	34.00

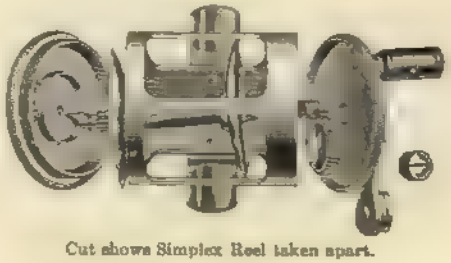


Meeks "Blue Grass" Kentucky.

Quadruple Multiplying, Made of Finest German Silver, Balanced Handles, Ivory Thumbpiece, Screw-off Oil Caps, with Click and Drag.

No.		Diam.	Each
3B	—Regular,	2 inches,	$15 00
3BJ	—Jeweled,	2 inches,	20.00





Cut shows Simplex Reel taken apart.

Meeks Improved "Blue Grass Simplex."

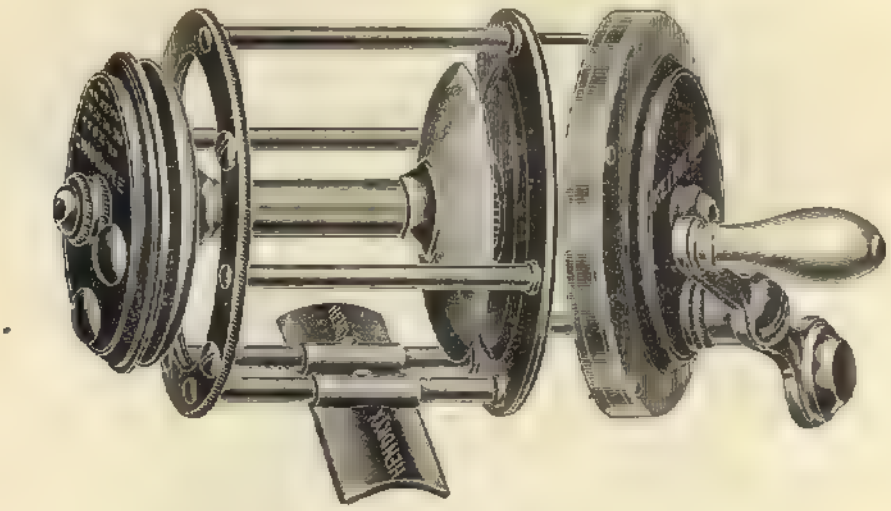
German Silver and Nickel Plated Brass, Frame is One-Piece of Seamless Tubing Threaded on the Interior, Front Plate is Rigidly Fixed in Frame and carries both Gear and Front Pivot of Spool and is not necessary to remove in order to Oil or Clean the Reel. The Sliding Click Drag is located in back end of Reel.

No.		Each
33	—Diameter of Spool 1⅝ inches, Length of Spool 1⅜ inches,	$7 50

All Above One in a Box.

Fishing Reels

KETTLETOWN—BAIT CASTING.

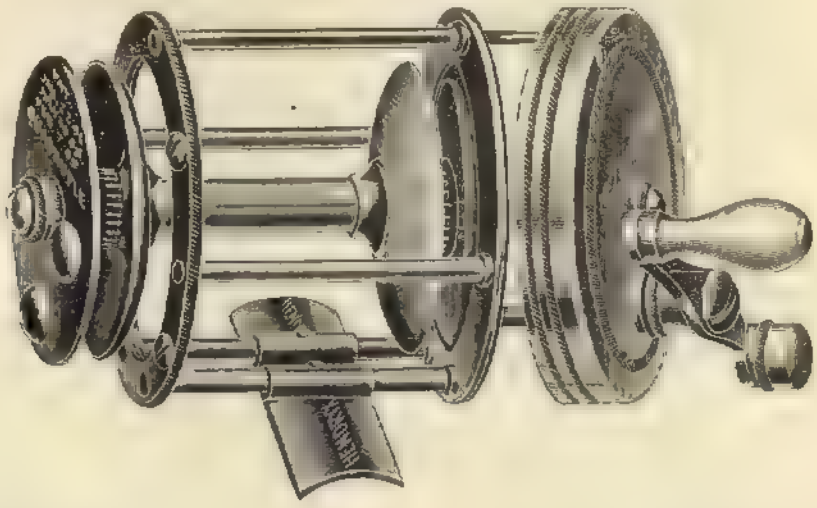


Rubber Cap, Quadruple Multiplying, Jeweled.

Brass Nickel Plated, Extra Strong, Riveted Seamless Frame, Extended Steel Pivots in Bushed Bearings with Oil Caps, Two Fine Jewels set in Oil Cups, Patent Adjustable Slide Drag and Back Sliding Click

No.	Yards.	Diam. Disc	Each
K6RJ—	60,	2¼ inches,	$7.00

One in a Box



Quadruple Multiplying.

Brass, Nickel Plated, Extra Strong, Riveted Seamless Frame, Extended Steel Pivots in Bushed Bearings with Oil Caps, Patent Adjustable Slide Drag and Back Sliding Click.

No.	Yards	Diam Disc.	Each
K4—	40,	2 inches,	$4.00
K6—	60,	2¼ inches,	4.50

One in a Box.

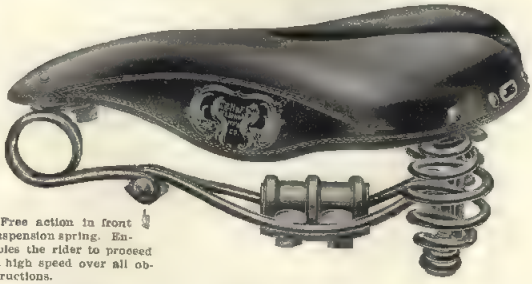
Quadruple Multiplying, Jeweled.

Brass, Nickel Plated, Extra Strong, Riveted Seamless Frame Extended Steel Pivots in Bushed Bearings, Two Fine Jewels set in Oil Cups, Patent Adjustable Slide Drag and Back Sliding Click.

No.	Yards.	Diam. Disc.	Each
K4J—	40,	2 inches,	$5.50
K6J—	60,	2¼ inches,	6.00

Mesinger Motor Saddle 1906

The ORIGINAL American Motor Saddle



Free action in front suspension spring. Enables the rider to proceed at high speed over all obstructions.

MODEL "AA"

The only coil hair padded suspension saddle. Two telescope springs in the rear makes comfortable riding on rough roads. Makes Motor Cycling more Tractable.

H. & F. MESINGER MFG. CO., 1803-1807 First Ave., New York

Our 1906 Proposition is Now Ready

YALE and SNELL Bicycles for the coming season represent the best there is to be had for the money, quality, construction and reliability considered. They are money-makers for dealers, and satisfaction givers for bicyclists. The 1906 Model of the **YALE** represents the highest point ever attained in the construction of a bicycle. The grace of line, beauty of finish and delicacy of treatment throughout, combined with easy-running qualities, are characteristics which place this wheel in a class by itself.

Our line of **SNELL** bicycles for the coming year is an interesting proposition for any dealer. They represent a great value. Write us for catalog and terms.

Consolidated Manufacturing Co., Toledo, Ohio.

(Succeeding Kirk Mfg. Co., and Snell Cycle Fitting Co.)

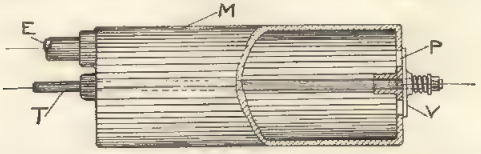
motor, is so arranged that it can be taken apart and replaced in position without any experimenting for determining the position of timing. On the rear of the brass plate is provided means for advancing and retarding the time of ignition. This outfit comprises a switch, inasmuch as the throwing off of the primary contact disconects all currents everywhere.

The Weiss Muffler

The Weiss Muffler, made by Thomas Weiss, 286 Graham street, Brooklyn, N. Y., is, like others, designed to muffle all noise of gas engine—exhaust without back pressure.

The Weiss muffler is an expansion chamber of about five times the cubic contents of one of the cylinders of the motor and into this chamber the motor exhausts. This chamber is equipped with a valve to the atmosphere, the opening or closing of which is timed, so that it is closed when the exhaust port of each cylinder opens, and the instantaneous delivery of the products of combustion from the cylinder into the expansion chamber takes place. This last named occurrence produces the pistol shot-like noise which is heard when a gasoline motor exhausts into the atmosphere unobstructed or through the cut-out of a muffler.

Just at the time of this delivery, however, the valve from the expansion chamber into the air is closed, and the noise is prevented. Immediately thereafter, the valve opens, and is fully open when the piston is traveling



The Weiss Muffler

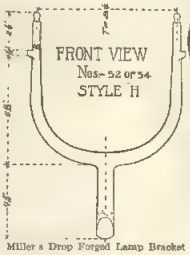
fastest, and expelling the foul gases from the cylinder freely and unobstructed through the expansion chamber into the atmosphere.

Besides the advantage of a noiseless exhaust there is claimed for the Weiss muffler the additional merit of preventing soot deposits on pistons, cylinder walls, valves, etc., because all products of combustion are freely expelled; and the free and unobstructed exhaust also prevents fouling of the incoming charge by burned gas residue being retained in the cylinder.

Miller's New Lamp Bracket and Lantern

We illustrate herewith two new specialties marketed by Charles E. Miller, 97-101 Reade St., New York. One is a standard fork lamp bracket. These lamp brackets are drop forged from stiff, strong steel, with a long stub of liberal stock to be forged into shape to fit to the car as desired or welded to other attachments. This style of bracket has been very extensively used, and Mr. Miller reports a large sale to manufacturers of automobiles, as well as to manufacturers of lamps who furnish their equipment complete with this style of bracket. These brackets are made with either plain or curved stub, and in two sizes. No. 1 measures, between centre of prongs, 8¼ ins.; No. 2, 7 ins.

They list at $1.50 each, with a liberal discount to dealers and manufacturers.



Miller's Drop Forged Lamp Bracket

Miller's Engineer's Lantern

He is also offering an engineer's brass lantern, which is being used by automobile parties having their private garage. This is a very handy and neat lantern, and is furnished in polished brass. The diameter of the globe is 3 ins., height of globe 4½ ins, extreme height of lantern 10 ins.

The price of this lantern is $3.00 list.

The Grout Brothers' Automobile Co., Orange, Mass., have just delivered one of their handsome 4-cylinder, 28-30 H. P. 1906 gasoline touring cars to Thos. A. Edison, of Orange, N. J.

Steam Carriage Boiler Co., of Oswego, N. Y., have supplied 10 large 24 inch boilers, each mounted on a sliding platform, with kerosene tank, kerosene burner, injector, air pump, etc., to be used by miners in thawing the frozen ground while digging for gold in Alaska.

A year's subscription at $1.00 includes without extra charge a copy of the January "Buyers' Guide Special," which is a book containing over 700 pages, including a complete classified directory of the trade. Do not fail to secure it by filling in the subscription blank on page 333 and mail at once.

1906 EQUIPMENT

Some of the largest manufacturers of automobiles in this country will equip their 1906 cars with

BRAMPTON CHAINS
"The strongest in the world"

DeDION SPARK PLUGS
"The standard of the world"

MILLER ELECTRIC HORN
"The only one in this country"

MILLER MICA SPARK PLUGS
"The best made in this country"

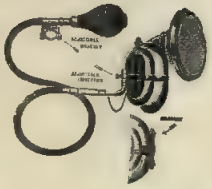
Miller's Imported Automobile Horns

We guarantee all our horns to be imported and superior in every way to the domestic horns. We guarantee our bulbs and reeds for one year. We are the largest importers of horns in this country and our prices for 1906 are lower than those quoted on inferior quality.

Samples and prices ready for the manufacturers

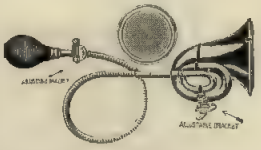
"LA BASSOON" HORNS

This is one of the latest ideas in a horn and is distinctly new. You will notice from the cut that this horn is made with an extra coil in the body of the horn similar to "La Tuba." This extra coil has the result of producing a very deep and musical tone. All our horns are spun from heavy brass and are highly polished. The illustration shows the adjustable bracket fitted to both horn and tube so that they may be attached to any kind of a car and in any position desired. The reeds and bulbs are guaranteed for one year.



No. 15 L. B. Diameter of bell 7 inches Polished brass only. Complete with 40 inch flexible tube and screen, $11.00

No. 14 L. B. same as No. 15, except diameter of bell 6½ inches. Price, complete, $9.00.



LA TUBA HORN

This is another one of the latest (double bend) style of horns, similar to La Bassoon. Fitted with adjustable brackets and produces a deep and lasting tone. Three sizes, complete with tube. Prices each, $7.50, $9.25, $10.00.

No. 8, OUR LEADER

This horn is fitted with 40-inch tube, screen and adjustable brackets. Diameter of bell, 6¾ inches. Furnished in polished brass and nickel plated.

Price, complete as above, $4.75.

Catalogue Mailed on Request

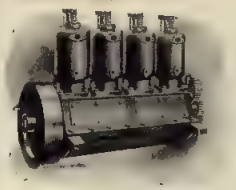
CHAS. E. MILLER, Manufacturer, Jobber, Exporter and Importer

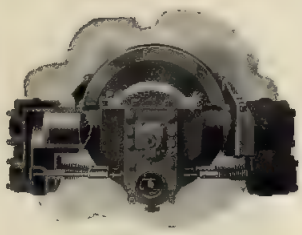
HOME OFFICE: 97-99-101 Reade St., New York City, N. Y.

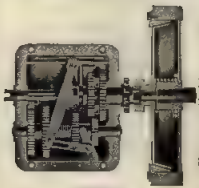
BRANCHES:—Broadway and 38th Street, NEW YORK

PHILADELPHIA, PA.—318-320 N. Broad Street BOSTON, MASS.—202-204 Columbus Ave. CLEVELAND, O.—406 Erie Street

Model Engines, Transmissions, and Finished Cars







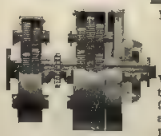
ENGINES

Double opposed engines, 12 to 24 H. P.
Air-cooled 4 cylinder vertical engine, 20 H. P.
Water-cooled 4 cylinder vertical engines, 25 to 60 H. P.

TRANSMISSIONS

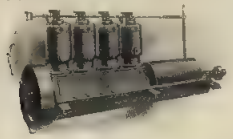
Sliding gear, 3 forward speeds and reverse, either chain or shaft drive.

Planetary, 2 forward speeds and reverse; also 3 forward speeds and reverse.



CARS

We build 8 different type cars, in sizes from 12 to 24 H. P., all with double opposed cylinder engines, ranging in prices from $700.00 to $2,000.00.



Special Cars and Trucks

We build special cars and trucks ranging in prices from $1,000.00 to $10,000.00.

MARINE ENGINES

Single cylinder marine engines, 2 to 6 H. P.
4 cylinder marine engines, 15 to 500 H. P.

We also build a line of stationary engines up to 500 H. P. We claim to have the most complete line of stationary, marine and automobile engines, and transmissions, of any concern in the country, and if you want a special car built to your order let us have your specifications and we shall be pleased to submit you quotations.

Model Gas Engine Works

Lock Box 2027, Auburn, Indiana

New York Office, B-21 Produce Exchange. Cable Address, Gasengine, New York.

The Mosler Spit Fire Spark Plugs

Actually "SPIT FIRE" where others spark only
ENERGETIC IGNITION GREATER POWER
And stand more **SOOT, OIL** and **WATER** than any other Plug
Base acts as Condenser of Electricity
Economizes Current Facilitates Sparking
Forms Compression Chamber Makes Plugs Spit Fire
Protects Porcelain and Sparking Points

A TRIAL IS CONCLUSIVE

Standard size, **$1.50** postpaid
With patented protector, $2.00

Made to fit any engine, any thread

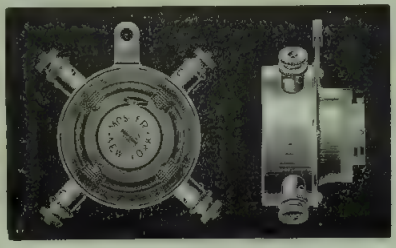
Write now for 1905 Illustrated Catalogue of **Mosler Ignition Outfits**

Special Discount to Manufacturers

The Mosler Timers and Distributers

Run in oil, in either direction. Not affected by engine speed. Self adjusting. Multiple cylinders set as easy as one. Self contained.

Timer and Distributer



Ball Snap Timer

A. R. MOSLER & CO., 1679 Broadway, New York

LEON

Oleo Magneto Spark Plug

Specially constructed for use in connection with high tension Magneto,

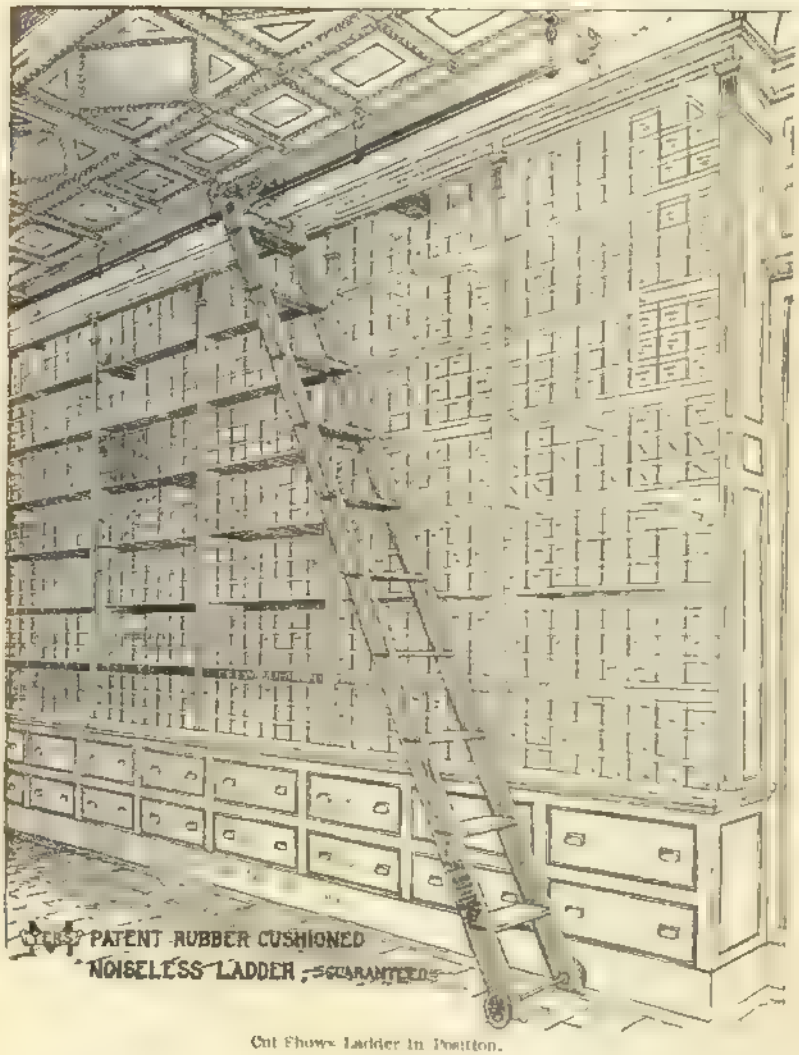
Oleo (Ordinaire) Spark Plug

will spark under all conditions. Absolutely soot proof.

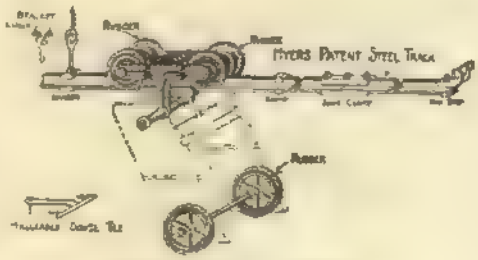
LEON RUBAY
IS THE
SOLE IMPORTER
of the Electric Ignition Apparatus of
J. LACOSTE & CIE
of **PARIS**

140 W. 38th Street
NEW YORK CITY
Telephone "4722 38th Street
Cable "Yabur N. Y."

Rolling Shelf Ladders.



Cut Shows Ladder in Position.



Cut Shows Track and Hanger

Myers' Trolley Rolling Shelf Ladders.

Code Celerandos. Each

No. 15—Myers Georgia Pine Ladders and Hangers, Complete with Trolley and Rubber Tire Floor Wheels, ... $16.00

Code Celeratem. Per Foot

No. 16—Myers' Steel Track, Complete with Hanging Hooks, . . . $0.30

Instructions.

In ordering give following Measurements:
Entire Length of Track required.
Height of Ceiling from Floor.

Description.

Ladder is 12 In. wide, Steps 5 In. wide, Open Panel Sides 5 In. wide.

Track is Double Angle Steel Rail.

Trolley is provided with 3 In. Anti-Rattler Wheels with Rubber Tires.

Not carried in Stock, and can only be furnished for shipment Direct from Factory.

NOS. 1 AND 2 BAR COLD SAW CUTTING OFF MACHINES.

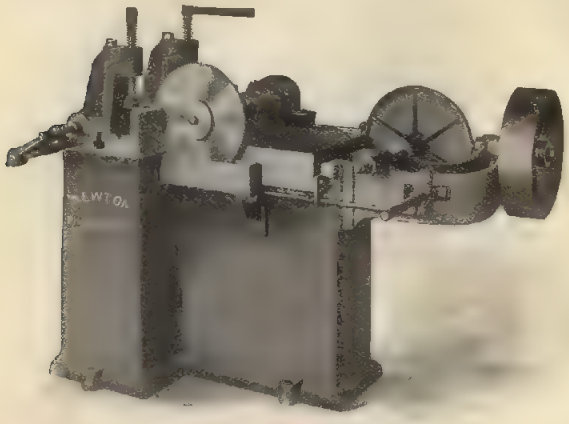


FIG 2500

These machines are very heavy and rigid, are powerfully driven, and are adapted to the heaviest work within the capacity of the tool.

Machines are furnished with one saw, independent saw-sharpening machine, five-gallon keg of lubricant, countershaft and wrenches for machine.

We solicit your correspondence and specifications for any standard or special machine tools that you may require.

Size of machine	No. 1	No. 2
Diameter of saw	16 in.	20 in.
Capacity for round stock	4¼ in.	5½ in.
Capacity for square stock	3¾ in.	5 in.

The Nos. 1 and 2 Bar Cold Saw Cutting Off Machines are fitted with a gauge for use in cutting stock into exact lengths.

NO. 1 BURR COLD SAW.

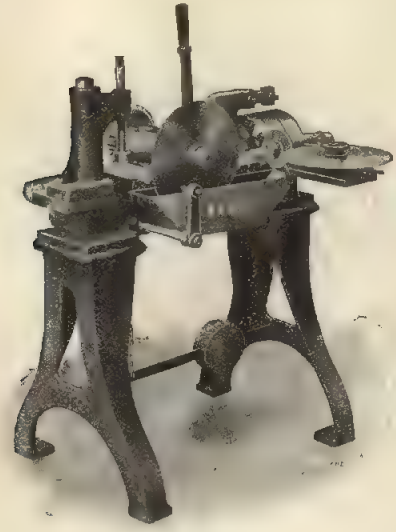


FIG. 2501.

Will cut off stock with smooth, parallel ends in from one-quarter to one-sixth the time required by a Power Hack Saw.

Cuts off round, square and other shaped stock up to 3⅛ inches round.

Saw is driven through steel gears, hobbed worm-wheel, steel worm provided with ball thrust bearing and splined worm shaft.

Saw carriage is gibbed to frame, and latches when clear back.

Gravity feed, adjustable by moving weight out on lever.

Efficient saw grinder furnished with each machine. Time required to sharpen saw, about 15 minutes.

Tight and loose pulleys on worm-shaft run 500 R. P. M.

Weight, 350 lbs. skidded

Price on application.

Object Lesson

One rider uses a Coaster Brake
The other rider does not

If you wish to add to the pleasures and safety of cycling, and increase your sales, recommend

NEW DEPARTURE SUNDRIES

Manufactured by
The New Departure Mfg. Co.
Bristol, Conn., U. S. A.

Selling Agents
John H. Graham & Co.
113 Chambers St., New York

Object Lesson

One rider uses a Coaster Brake
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Manufactured by
The New Departure Mfg. Co.
Bristol, Conn., U. S. A.

Selling Agents
John H. Graham & Co.
113 Chambers St., New York

What the COASTER BRAKE
IS DOING FOR CYCLING.

Everybody Rides them Everybody Sells them.

MANUFACTURED BY
The NEW DEPARTURE MFG. Co.
BRISTOL, CONN., U.S.A.

SELLING AGENTS
JOHN H. GRAHAM & Co.
NEW YORK CITY.

NO. 3 SERIES BELT POWER SHEARS,

MADE IN 4 SIZES.

No. 3 B.

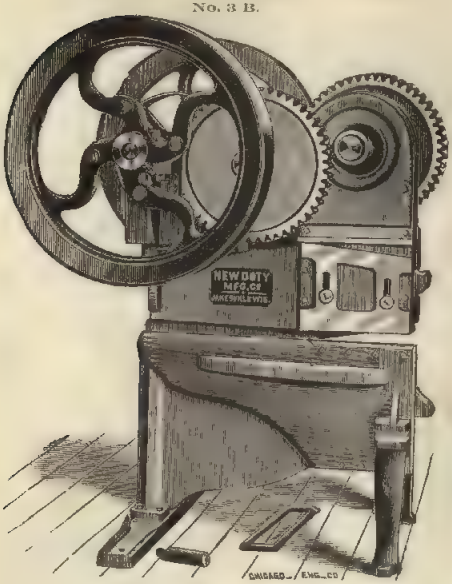


FIG. 2488.

No. 3 *B* will cut plates $\frac{1}{2}$ inch or less in thickness, and of any width or any length. Weight, 3,900 pounds. Tight and loose pulleys, 18 x 6 inches.

Price $450

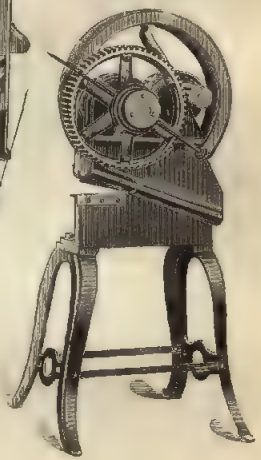


FIG. 2489

No. 3 O will cut $\frac{3}{16}$ inch, or less, of any width or any length. Weight, 600 pounds.

Price $100

"BLISS" INCLINABLE POWER PRESSES.

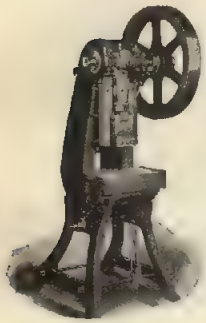


FIG 2490.

Specially adapted for operating cutting, perforating, and forming dies, such as are extensively used in the manufacture of tinware, brass goods, burners, gas fixtures, jewelry, buttons, etc.

They are well known to the manufacturers of sheet metal goods all over the world, for convenience, durability and wide range of usefulness.

"STILES" POWER PUNCHING PRESSES.

Built in ten sizes, weighing from 550 to 11,000 pounds. They are especially designed for heavy punching, forming and bending, including a large number of the operations required in the manufacture of hardware, bicycles, locks, cutlery, automobile parts, sewing machines, typewriters, and many other sheet metal articles.

FIG. 2491.

THE PADISHAH

FITTED WITH FANCY DIALS OR PLAIN WHITE DIALS. GUARANTEED BY THE MANUFACTURER. THE BEST WATCH ON THE MARKET FOR THE PRICE.

No 1831. $2.60 No 1832 $2.66 No. 1833. $2 66 No. 1834. $2.66 No 1835. $2 66

No. 1836 $2.66 No. 1837. $2.66 No. 1838. 2.66 No. 1839. $2.66 No. 1840. $2.66

ANSONIA, NEW HAVEN AND THE WASHINGTON WATCHES.

No. 1841 The Ansonia $1 92
Face, Nickel Case, 18 Size, Thin Model, Stem Wind and Stem Set, Plain Polished Nickel Open Face Case

No. 1842 Ditto $2.00
Same as Above, Nickel Open Face, Engine Turned Case

No. 1843 The New Haven Watch Co. $1.85
Stem Wind Stem Set, Nickel Case, 18 Size, Sunk Second, Thinnest Made by any Clock Company

No. 1844 The Washington $1 75
Nickel Open Face Case 18 Size, Thin Model Stem Wind and Stem Set, Most Strong Barrel, Keyless Work, without Ratcheting the Train
Roman or Arabic Dial Guaranteed by the Manufacturers

GUARANTEED BY THE MANUFACTURER.

Duplex Escapement. Price Each.

No. 1821, $5.30
Open Face, Oxidized Steel Case, Fitted with 2 Jeweled Gilt Movement
Black Dial, Red Arabic Numerals and Gold Hands, Gold Filled Bow and Crown.

No. 1822, $4.25
Open Face, Screw Back and Bezel, Solid Nickel Silver Case 14 Size, Engine Turned, 7 Jeweled Gilt Movement, Porcelain Dial, Arabic or Roman Figures.

No. 1823, $4.25
Open Face, Screw Back and Bezel, Solid Nickel Silver Case, 14 Size, 2 Jewel Gilt Movement, Porcelain Dial, Arabic or Roman Figures.

No. 1824, $3.20
Open Face, Solid Nickel Silver Case, 14 Size Porcelain Dial, Roman or Arabic Figures, 2 Jewel Gilt Movement

No. 1825, $3.72
Open Face, Solid Nickel Silver Case, 6 Size, Porcelain Dial, Roman or Arabic Figures, 2 Jeweled Gilt Movement

No. 1826, $5.52
Open Face Silver Bezel and Back, Solid Nickel Silver Case Antique Bow, 18 Size, 4 Jewel Gilt Movement, Fitted with Extra Heavy Dial and Hands

No. 1827, $2.60
Open Face Nickel Silver Case, Roman or Arabic Dial, Nickel Movement

No. 1828, $4.26
Open Face Screw Bezel and Back, Solid Nickel Silver Case 18 Size 2 Jewel Gilt Movement, Fitted with Extra Heavy Dial and Hands

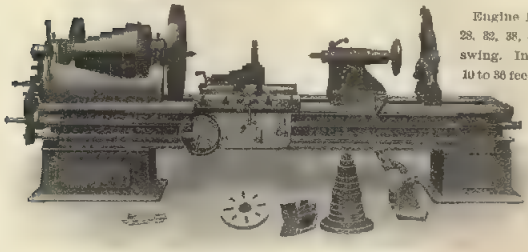
No. 1829, $5.00
Open Face, Screw Bezel and Back, Solid Nickel Silver Case, 18 Size, 4 Jewel Gilt Movement, Porcelain Dial, Arabic or Roman Figures.

No. 1830, $3.72
Open Face, Screw Bezel and Back Solid Nickel Silver Case, 18 size, 2 Jewel Gilt Movement, Porcelain Dial, Arabic or Roman Figures.

4 Jewel Duplex Movements are Equivalent to 7 Jewel Lever Movements.

"NEW HAVEN" TOOLS.

28-INCH SWING ENGINE LATHE.



Engine Lathes of 18, 21, 24, 28, 32, 38, 45, 50 and 60-inch swing. In lengths of from 10 to 36 feet.

FIG 2433.

45-INCH SWING TRIPLE GEARED LATHE.

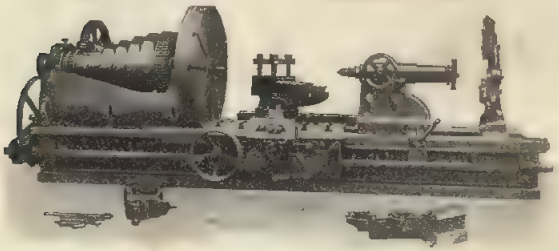


FIG. 2434

60-INCH TRIPLE GEARED LATHE.

FIG 2435

IMPROVED 30-INCH SCREW CUTTING ENGINE LATHE.

COMPOUND REST, RAPID CHANGE FEED, FEEDS FROM 7 TO 254 TO 1 INCH.

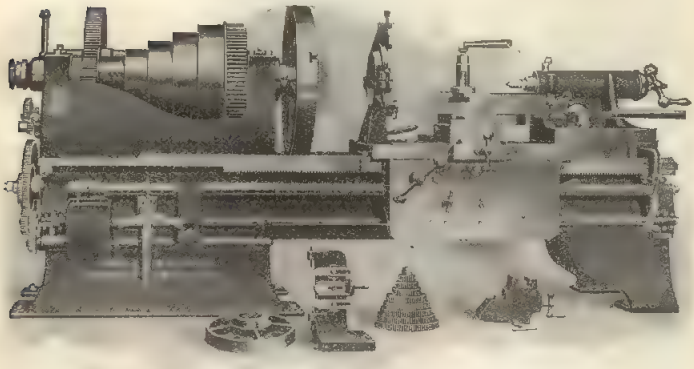


FIG 2486.

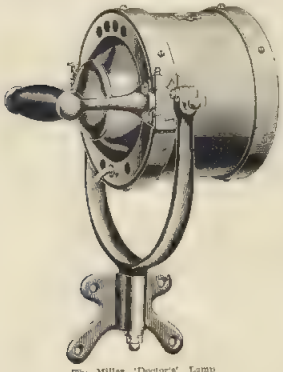
Bed, Feet.	Swing, Inches.	Turns Between Centres.	Net Weight Lbs.	Gross Weight, Lbs.	Cubic Feet.
10	30	3 ft 9 in	6 761	7 518	
11	30	4 " 9 "	7 011	7 868	194
12	30	5 " 9 "	7 261	8 278	210
13	30	6 " 9 "	7,511	8 761	226
14	30	7 " 9 "	7 761	9 261	242
15	30	8 " 9 "	8,011	9,511	258
16	30	9 " 9 "	8 261	10,150	274
17	30	10 " 9 "	8,611	10,861	290
18	30	11 " 9	8,961	11,375	306
9	30	12 " 9	9 311	11,880	423
20	30	13 " 9	9 360	12,380	440

Swings over V's 31 in.; over carriage 21 in. Diameter of cones, 19⅛ in., 16⅜ in., 13¹¹/₁₆ in., 9¹⁵/₁₆ in., 6¾ x 4¼ in. Hole in head spindle 2⅛ in. Front bearing 4½ in. diameter, 7½ in. long. Phosphor bronze boxes. Tail spindle 3⅛ in. in diameter. Ratio of back gears 16 to 1. Spindles of hammered crucible cast steel forgings. Power cross feed. Large and small face plates. Centre rest and follow rest. Automatic stop on feed rod. Screw disconnected by clutch when not used for screw cutting. Side block for turning full swing of lathe. Friction countershaft has 18 x 6¾ in. pulleys and should run 125 revolutions per minute. Complete with all necessary gears and wrenches.

This style built down to 22 in. inclusive.

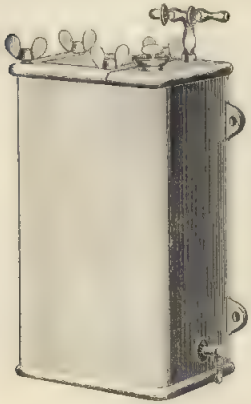
New Miller Lamp and Generator

Miller Mfg Co., Peekskill, N. Y., are offering a new lamp which they call the Doctor's model, and a new gas generator for 1906.



The Miller "Doctor's" Lamp

The Doctor's Lamp is of the same high class construction as all their products. It has solid aluminum bands, solid aluminum back,



Latest Miller Generator.

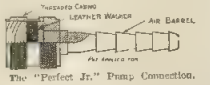
solid brass handle and hinge, solid reflector which will not tarnish or break, and a solid brass body, with no chimney. It is fitted with the Miller lens reflector, comprising a machined casting, a silvered mirror and a polished lens all back of the burner. This lamp is made in two sizes and with either swivel or rigid bracket. Prices with swivel bracket are $30 for the 6-in. size and $40 for the 7-in. size. The same sizes with rigid brackets list respectively at $25 and $35.

The new gas generator has a solid brass body, without seam or joint. It is tinned within and polished without. Brass, copper, nickel or black enamel is given, as desired. Gas, water and filter chambers are all in the one body, the dimensions of which are 9 ins. high, 5½ ins. wide and 2¾ ins. deep. The body has round corners. This generator holds 10 lbs. of carbide. Water is fed from the bottom and the action of the feed is automatic, not affected by jolting. Price is $20.

The "Perfect Jr." Pump Connection

E. S. Yense, Reading, Pa., has brought out a new pump connection for 1906 which he calls the "Perfect Jr.," to distinguish it from his well-known "Perfect" coupling. It screws over the outside of the valve, same as the "Perfect."

The "Perfect Jr." is an all brass connection, with long stem, giving ample length for



The "Perfect Jr." Pump Connection.

fastening into the pump hose most securely. The fiber washer, of course, is not used in this connection, but leather is substituted in its place, which answers the purpose very nicely, and does very good work. He offers the "Perfect Jr." in competition with other moderate priced couplings, but for a high grade pump it is not as desirable as his standard "Perfect" connection.

New Process Metal Gears

The New Process Raw Hide Co., Syracuse, N. Y., has announced its intention of going more extensively into the manufacture of metal gears of all kinds as well as its well-known New Process Noiseless Pinions. In furtherance of this plan, the company has just completed a two-story brick addition containing about 10,000 feet of floor space, and is installing a number of additional turret lathes, drills, grinders, spur gear cutters, bevel gear planers and other machines necessary for the manufacture of accurate gearing. This additional equipment will increase the company's capacity about seventy-five per cent. Business with this concern is very brisk and it reports shipments as considerably in excess of last year with prospects very bright for a continuance of same.

Diamond Rubber Co., Akron, Ohio, are now licensed to manufacture mechanically fastened tires under the Fisk patents, negotiations to this end having been recently concluded with the Fisk Rubber Co. of Chicopee Falls, Mass., the holders of the patents.

The Jones & Burt Automobile Wheel

Jones & Burt, 172 South street, Utica, N. Y., have brought out a new artillery wheel for automobiles, the chief feature of which is the specially designed spoke, which, it is claimed, not only gives great strength, but gives a very natty appearance to the wheel. Experience and study has convinced them that the point at which the spoke is

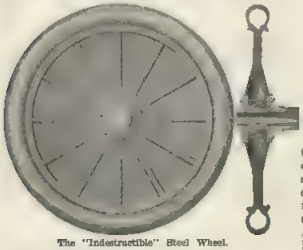
The Jones & Burt Automobile Wheel.

concaved marks the area of elasticity. The resilience of the spoke is measured by the area included within the curve, which also measures the capacity for resisting shock without serious distortion or injurious set. They believe that to successfully resist a violent shock, resiliency, rather than mere strength, is required.

Jones & Burt's location enables them to make prompt deliveries.

The "Indestructible" Steel Wheel

The "Indestructible" is a steel automobile wheel in which is combined tubular and disk constructional features. It is made by Turner & Fish, 17 Quincy st., Chicago, Ill., Room 406. Besides the feature of exceptional



The "Indestructible" Steel Wheel.

strength, which gives the wheel its name, it is also neat in appearance and easily cleaned. It consists principally of two disks and the hub parts and it would appear that simplicity of construction, ease and economy of manufacture and lightness are also prominent and valuable features of the "Indestructible" wheel. The disks are stamped from cold rolled high carbon steel, and so shaped as to give the appearance of ordinary tubular spokes connected by webbing. Each disk forms one side of the wheel and the two when rivetted together make the complete wheel, the peripheries of the disks being flanged outwardly to form a seat for whatever style of rim is used. The disks are dished at the centre to receive the hub. The inner section of the hub is fitted between the two disks as they are being assembled and the outer hub parts or flanges are held on by the same through bolts which pass through the middle hub section. It will be noticed that the web portions of the disks are in surface contact with each other and rigidly united by rivets.

The Nicholls Portable Hoist

William S. Nicholls, 253 Broadway, New York, is manufacturing a portable hoist which will interest garage men and manufacturers. It is made of angle steel, bent to form and devoid of weakening joints. It is thoroughly braced, and being of steel is both strong and light, hence easily moved. Six sizes of this hoist are made, capacities ranging from 1000

The Nicholls Portable Hoist.

to 6000 lbs. The wheels are 7½ ins. in diameter and 3 ins. across the face. They revolve on ball bearings. Standard height of this device is 8 ft., but higher ones can be furnished at prices above regular. A manilla rope and steel pulley goes with each machine. An adjustable grab chain and two double hooks will be furnished at extra cost. Prices range from $40 to $105.

The 1906 Condensing Muffler made by F. E. Bates & Co., Northfield, Minn., but slightly differs from the 1905 model. The space between the outer and inner shells which in last year's model was filled with asbestos is now free and open which makes the muffler cooler and more efficient.

Butcher Steels

Nichols, Adamantine Temper, Polished Ebonized Handle.

No.	102	122	142
Length, inches,	10	12	14
Per Dozen,	$9.00	12.00	15.00

Nichols, Adamantine Temper, Cocobolo Handle, Lead Trimmings.

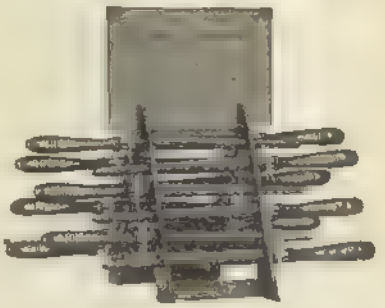
No.	122 I	142 I
Length, inches,	12	14
Per Dozen,	$17.00	20.00

Nichols, Adamantine Temper, Imported Horn Handle, Round Guard.

No.	122S	142S
Length, inches,	12	14
Per Dozen,	$17.00	20.00

No		Per Doz.
81—Kitchen Steel, 8 inches, Polished Ebonized Handle, Coarse Cut,		$4.00

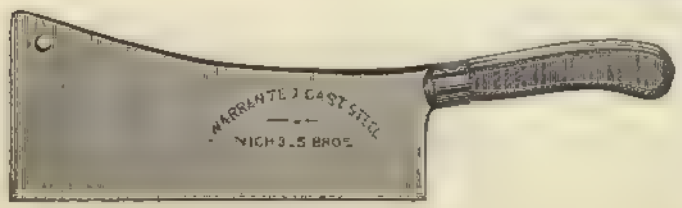
Knife Sharpeners



	Per Doz
Pykarvo Knife Sharpeners Corundum Shaft Reinforced with a Steel Rod Run Through the Center, Handle Tuscan Rosewood, Length of Sharpener and Handle 12½ inches,	$3.00

One Dozen complete with Display Stand

Cleavers



Lamb Cleavers.
Cast Steel, Herring Boned, Flat Tangs, Riveted.

Blade, inches,	8	9
Weight, lbs., each,	1½	1¾
Per Dozen,	$15.00	16.50

Kitchen Cleavers.
Tool Steel, Beech Handles.

Blade, inches,	9
Per Dozen,	$6.00

Kitchen Knives

Best Quality Steel, Sharpened Ready for Use

No. — Per Doz

131—Square Point, **Enameled** Handle, $1.25

No. — Per Doz

133—Sharp Point, **Enameled** Handle, ... $1.25

No. — Per Doz

134—Spear Point, **Enameled** Handle, ... $1.25

No. — Per Doz

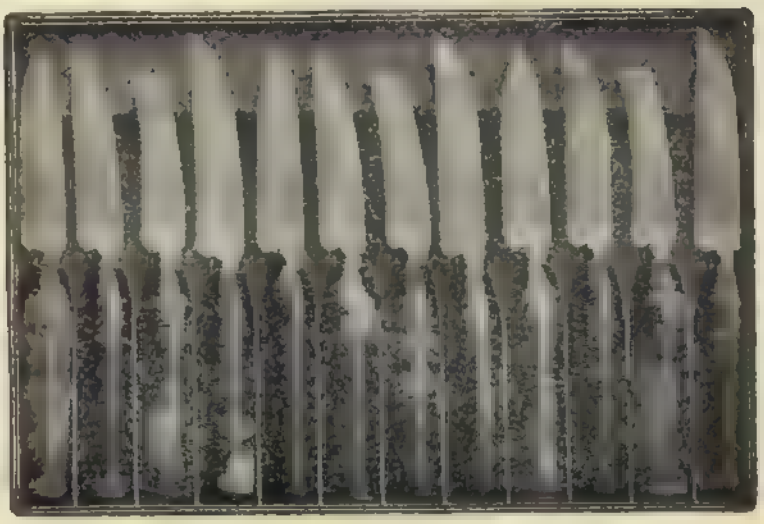
135—Curve Point, **Enameled** Handle, ... $1.25

All Above One Dozen in a Box

No. — Per Doz

X177—**Ebonized** Handle, with Rivet, Ground Sharp, ... $1.50

One Dozen in a Display Box



No. — Per Doz

105R —Assortment, **Ebonized** Handles, with Rivet, Ground Sharp, ... $1.50

One Dozen in a Display Box.

MARINE ENGINE.

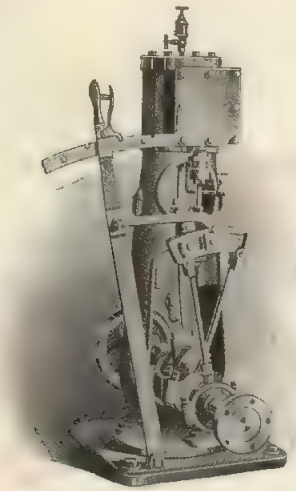


FIG. 2297.

These engines are built as compact and light as is consistent with their rated power. The rods and shafts are of hammered iron, and the Connecting Rod Boxes, Crosshead-Gibs, Link Block, etc., are of the best gun metal. All sizes are furnished with Link and Reversing Lever, as shown. This engine is also furnished in duplex reversing type.

TABLE OF DIMENSIONS.

Horse-Power as usually rated.	5	7	10	14	20	25	35	50	75
Size of Cylinder, inches	5x5	6x6	7x7	8x8	9x9	10x10	12x12	14x14	16x16
Diameter of Shaft, inches	1 1/16	1 1/8	2 3/16	2 1/8	2 1/8	3 1/4	3 3/4	4 1/4	5 3/4
Height from Floor to Center of Shaft, inches.....	8	9	11 1/2	12 1/2	16	14 1/2	15	15 1/2	16
	Ft. In.	Ft. In.	Ft. In.	Ft.	Ft In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
Height to Top of Cylinder....	3 3	3 11	4 7	5	5 6	6 1	6 7	7 4	8 0
Floor Space occupied in inches square	18	25	28	30	30	36	42	46	48
Weight of Engine, pounds...	250	500	700	1,100	1,400	1,800	2,400	3,200	3,800

VERTICAL ENGINES.

CLASS B.

FIG. 2295

CLASS C.

FIG. 2296

TABLE OF DIMENSIONS. CLASS B.

Horse-Power as usually rated...	1	3	5	7	10	14	20
Size of Cylinder, inches	3x3	4x4	5x5	6x6	7x7	8x8	9x9
Revolutions per minute	300	280	250	200	190	180	160
Size of Steam-Pipe, inches	⅜	⅜	½	1	1¼	1½	2
Diameter of Exhaust-Pipe, inches	¾	1	1	1¼	1½	2	2½
Diameter of Shaft, inches	1⅛	1⅜	1⅞	1⅞	2⅜	2⅞	3½
Diameter of Fly-Wheel, inches	18	16	20	24	32	36	42
Face of Fly-Wheel, inches	3	4	5	6	7	8	9
Height from Floor to Center of Shaft, inches	9	10	12	14	18	20	24
Height to Top of Cylinders	Ft. In. 2 6	Ft. In. 3	Ft. In. 3 7	Ft. In. 4 6	Ft. In. 5 1	Ft. In. 5 8	Ft. In. 6 8
Floor Space occupied, inches	18x22	15x28	18x36	22x40	25x46	28x50	30x58
Weight of Engine, pounds	225	350	600	900	1300	1800	2700

TABLE OF DIMENSIONS. CLASS C.

Horse Power as usually rated	1	2	4	6	8
Size of Cylinder, inches	2½x3	3x5	4x5	5x7½	6x7
Revolutions per minute	400	350	325	250	225
Diameter of Steam-Pipe, inches	⅜	½	¾	1	1
Diameter of Exhaust-Pipe, inches	¾	¾	1	1¼	1½
Diameter of Shaft, inches	1⅛	1⅛	1⅜	2⅜	2⅞
Diameter and Face of Wheel, inches	13x3½	15x4	17x4½	24x6	24x6
Diameter and Face of Pulley, inches	6x3	10x5	12x6	14x7	14x8
Height from Floor to Center of Shaft, inches	7	10	10	18	18
Height from Floor to Top of Cylinder, inches	28	42	43	54	54
Floor Space occupied, inches square	13	17	17	20	20
Approximate Weight, pounds	200	400	450	700	800

TO INCREASE YOUR BUSINESS, USE OUR

Observatory Advertising Clocks.

The 8-Day Long Pendulum Movement is a Reliable Timekeeper.

No. 568.

8-Day Time,

List,

$5.90

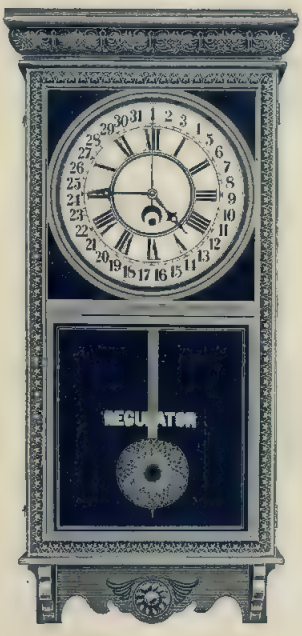
No. 569.

8-Day Time and Calendar,

List,

$6.46

8-DAY.
12 INCH DIAL.
HEIGHT 38½ INCHES.
OAK CASE.



When ordered in lots of three or six at one time, we will paint your name and address and the words "Watchmaker and Jeweler" on lower glass panel (in gold bronze letters) for $1.06 list per clock. Send your orders. Sell them at cost or loan or rent them, to be used in stores and hotels in neighboring towns.

Extra Low Values
Characterize This Offer.

A very attractive and economical advertising medium.

DON'T MISS THIS OPPORTUNITY.

THIS CLOCK IS NOT MADE IN STRIKE.

SEE PAGE 496 FOR STRIKE.

OCTAGON LEVER.
Veneered.

No. 570	1 Day, 6-Inch Dial	$3 25
No. 571	1 Day, 6-Inch Strike	4 00
No. 572	8 Day, 8-Inch Time	3 75
No. 573	8 Day, 8-Inch Strike	4 50
No. 574	8 Day, 6-Inch Time	4 25
No. 575	8 Day, 8-Inch Time	4 75
No. 576	8 Day, 8-Inch Strike	6 75
No. 577	8 Day, 12-Inch Chime	6 15
No. 578	8 Day, 12-Inch Strike	8 15
No. 579	8 Day, 8-Inch Time Calendar	5 25
No. 580	8 Day, 8-Inch Strike Calendar	7 25
No. 581	8 Day, 12-Inch Time Calendar	6 65
No. 582	8 Day, 12-Inch Strike Calendar	8 65

8-Inch measures across the Back 8¾ inches.
8-Inch measures across the Back 10¾ inches.
12-Inch measures across the Back 15½ inches.

ENGINE LEVER.
Brass or Nickel

No. 583	One-Day, Time	$4 50
No. 584	Eight Day, Time	5 50

6 Inch Dial.
Measures across the Back 7½ inches.

No. 585. NAVY $7.00
Polished Brass, Eight Day, Time.
3½ Inch IVORY DIAL, Ivory Center, Beveled Glass.
Measures across the Back 4¾ inches.
Winds, Regulates and Sets from Outside.

OBSERVATORY CALENDAR.
Oak Only.
Height, 37 in. Width 12⅝ in. 12 in. Dial.

		List, Each.
No. 586	Eight Day, Strike	$6 95
No. 587	Eight Day, Strike, Calendar	7 40

No. 588	One Set PYRAMIDS, 6 Clocks, 1 Wire Bell Strike	Per case, List, $24 70
No. 589	One Set CAIROS, 1 Wire Bell and 2 Wire Bell Alarm	Per case, List, 20 10
No. 590	One Set PASHAS, 2 Wire Bells, 2 Alarms, 2 Gongs	Per case, List, 26 60
No. 591	One Set MOGULS, 10 Clocks, Alarm, Wire Bell Strike	Per case, List, 27 60
No. 592	One Set KHEDIVES, 4 Gong and 2 Gong Alarm	Per case, List, 28 50

Six all Different Styles in a Case. We show Three Only Here.

Laib & Co.
1155
Louisville Ky.

OIL AND POWDER CANS; HORSE SHOES, ETC.

OIL CAN.

FIG. 3274.

POWDER CAN.

FIG. 3275.

SLEDGE AXE AND SPIKE HATCHET.

FIG. 3276.

Oil and Powder Cans.

	½ Pint	1 Pint	½ Gallon	1 Gallon
Capacity				
Price, Oil Cans per dozen	1.60	1.80		
Price, Powder Cans per dozen			2.50	3.00

Sledge Axes weigh 3 to 5 pounds; Spike Hatchets, 2½ to 3 pounds. Prices on application.

Horse Shoes.

Light.

	FRONT.								HIND.							
Size	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8
Weight ounces	11	14	17	20	25	29	36	41	48	9	11	14	18	22	27	31	35	40
Average number in a keg	145	114	94	80	64	55	44	39	33	178	145	114	89	73	59	52	46	40

Medium.

	FRONT.								HIND.							
Size	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Weight ounces	17	20	25	29	35	40	46	55	14	16	20	24	29	34	38	43
Average number in a keg	94	80	64	55	46	40	35	29	114	100	80	67	55	47	42	37

Heavy.

	FRONT.								HIND.							
Size	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Weight ounces	18½	22	26	30	36	43	48	58	15	18	22	26	30	35	40	46
Average number in a keg	86	73	62	53	44	37	33	28	107	89	73	62	53	46	40	35

Mule Shoes.

Size	00	0	1	2	3	4	5
Weight ounces	8	9	12	14	16	23	27
Average number in a keg	200	178	133	114	100	70	59

Horse Shoe Nails.

Number	3	4	5	6	7	8	9	10
Price, Favorite per pound			.15	.15	.15	.15	.15	.15
Price, American per pound			.20	.20	.20	.20	.20	.20
Price, Capewell and U.S. per pound			.22	.19	.18	.17	.16	.16
Price, Putnam per pound	1.00	.50	.26	.23	.21	.20	.19	.18
Price, Vulcan per pound			.26	.23	.21	.20	.19	.18
Price, Ausable per pound			.31	.28	.26	.25	.24	.23

Laib Co. 1154 Louisville Ky

PIECED TINWARE, I. C.

DINNER BUCKETS.

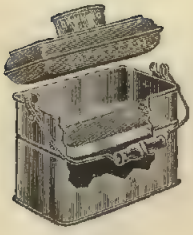


FIG. 3267.

FIG. 3268.

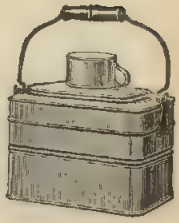


FIG. 3269.

Capacity, Quarts.	FIGURE 3267. Size, Inches.	FIGURE 3267. Price, Per Dozen.	FIGURE 3268. Size, Inches.	FIGURE 3268. Price, Per Dozen.	FIGURE 3269. Size, Inches.	FIGURE 3269. Price, Per Dozen.
2	7¾x5½x5¾	6.00	.....	.....	8 x 5	6.50
3	8¼x6¼x6½	7.00	8⅜ x 6	7.50	8¼ x 6	8.50
4	9¼x6¼x6¼	9.50	9 x 6¾	9.50	9 x 6½	10.00

TEA AND COFFEE POTS. DRINKING CUP. DIPPER.

FIG. 3270.

FIG. 3271.

FIG. 3272.

FIG. 3273.

Tea and Coffee Pots.

Capacity ..... quarts	1	1½	2	3	4
Price, Tea Pots. ..... per dozen	2.50	3.00	3.35	3.75	... ..
Price, Coffee Pots ..... per dozen	2.50	.....	3.35	3.75	4.50

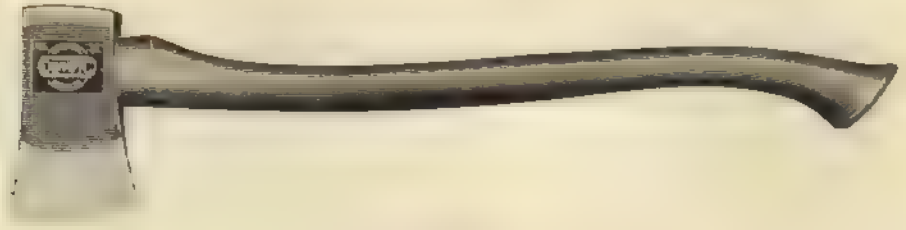
Drinking Cups.

Capacity ..... pints	1	2
Price ..... per dozen	.70	1.30

Dippers.

Capacity ..... quarts	1	2
Price ..... per dozen	1.60	2.00

Boys and Freighters Axes



BOYS

	Per Doz.
Olympic. —Best Quality Cast Steel, Cannon Finish, 28 in. Handles, Warranted	$14 00
Falls City. —Cast Steel, Painted Red, Polished Head and Bit, 28 in. Handles ...	12 00
Jim Dandy.—Crucible Cast Steel, Forge Finish, 28 in. Handles.	10 00

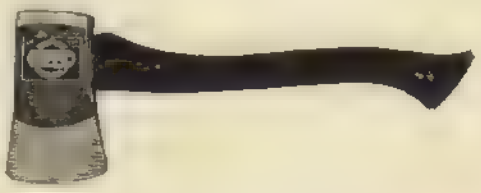
Weight 2¾ Pounds Weight of Axe is without Handle One-Half Dozen in a Crate

FREIGHTERS

	Per Doz
Olympic.—Best Quality Cast Steel, Cannon Finish, 32 in. Handles, Warranted.....	$15.00

Weight 3 Pounds. Weight of Axe is without Handle. One Half Dozen in a Crate

Hunters Hatchets



	Per Doz
Olympic. Best Quality Cast Steel, Cannon Finish, Weight 1¼ Pounds, 2⅞ in Cut, 14 in. Axe Pattern Handle....	$11.00

One-Half Dozen in a Box

Firemens Axes

	Per Doz.
Fireman's Axe. Natural Forge Finish, Finest Quality Steel Pick and Bit, Handles Painted Red. Weights, Ass'd 4½ to 6 Pounds	$36 00

One-Half Dozen in a Case

Ice Axes

No.		Per Doz
605	Chicago Pattern, Crucible Cast Steel, Handled with 30 in Handles, Weight 4 Pounds	$36.00

One Dozen in a Case

Adzes

SAYRES

House Carpenters

Best Cast Steel, Polished Head and Bit

No.		Per Doz.
230	Assorted 3½ to 4½ in. Cut Average Weight per Doz. 55 Pounds	$24 00

One Dozen in a Case

Railroad—Full Head

Best Cast Steel, Polished Head and Bit

No.		Per Doz.
231	Assorted 5 to 5½ in. Cut Average Weight per Doz. 60 Pounds	$26.00

WHITES

House Carpenters

No.		Per Doz.
30	Assorted 4 to 5 in. Cut	$24.00

Plain Ship

No.		Per Doz.
44	4, 4¼ in. Cut	$30 00
	4½, 4¾, 5 in. Cut	33 00

One Dozen in a Case

Lipped Ship

No		Per Doz
45	4, 4¼ in. Cut	$33 00
	4½, 4¾, 5 in. Cut	36 00
	5¼, 5½ in. Cut	39 00

SAWS.

FIG. 3294.

Silver Steel Mitre Box Saws, Polished Edge.

Length.....inches	18	20	22	24	26	28	30	32
Price, Four Inches Under Back.....per dozen	25.25	27.50	29.75	32.00	34.25	36.50	38.75	41.00
Price, Five inches under Back .....per dozen	32.00	35.00	38.00	41.00	44.00	47.00		
Price, Six Inches under Back.....per dozen	35.50	39.00	42.50	46.00	49.50	53.00		

Silver Steel Back Saws.

Length.....inches	8	10	12	14	16	18
Price, Blued Back.....per dozen	15.00	16.00	18.00	20.00	22.50	25.00
Price, Polished Back..... ..per dozen	16.00	17.00	19.00	21.00	23.50	26.00

ONE MAN CROSSCUT SAWS, TUTTLE TOOTH.

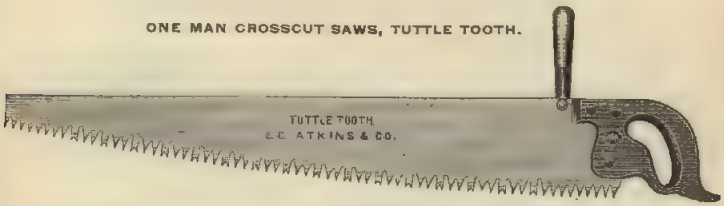


FIG. 3295.

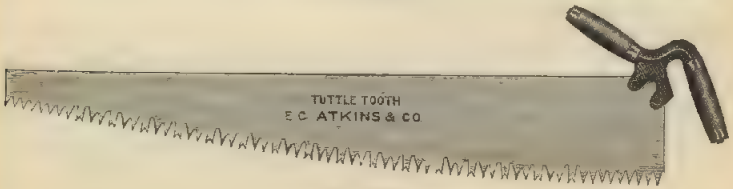


FIG. 3296.

Length.....feet	3	3½	4	4½	5	5½	6
Price.....each	1.80	2.10	2.40	2.70	3.00	3.30	3.60

Faib & Co.
1161
Louisville Ky.

SAWS, HANDLES AND SETS.

Cross Cut Saws.

COMMON TOOTH.

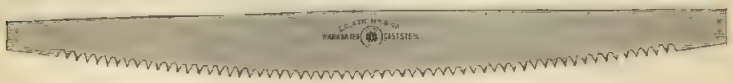


FIG. 3297.

TUTTLE TOOTH.

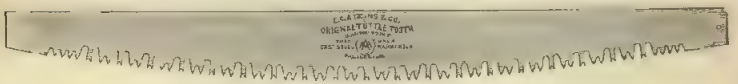


FIG. 3298.

Length.....feet	4	4½	5	5½	6	6½	7	7½	8
Price, Regular; Common and Tuttle Tooth.....each	1.84	2.08	2.30	2.54	2.76	3.00	3.22	3.46	3.68
Price, Thin Back; Common, Tuttle and Diamond Point Tuttle Tooth.....each	2.00	2.26	2.50	2.76	3.00	3.26	3.50	3.76	4.00
Price, Extra Thin Back, Diamond Point Tuttle Tooth.each	2 50	2.76	3 00	3 26	3 50	3.76	4.00	4.26	4.50

Cross Cut Saw Handles.

REVERSIBLE HANDLE, MALLEABLE CLASP

FIG. 3299.

LOOP HANDLE, IRON COMBINATION PLUG AND NUT WITH LUGS.

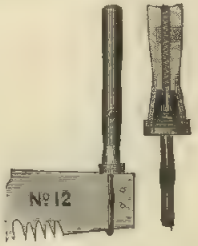


FIG. 3300.

Number	11	12
Price.....per pair	.15	.40

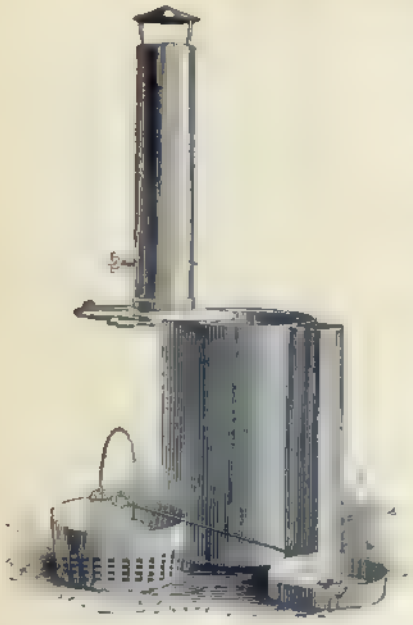
MORRILLS' SAW SETS.

FIG. 3301.
No. 1.

FIG. 3302.
No. 4.

Price, No. 1; Polished, for Hand, Band and Jig Saws. .....per dozen	12.00
Price, No. 4; Polished, for Cross Cut Saws .....per dozen	24.00

THE TWENTIETH CENTURY TANK HEATER.



Is the hottest thing on earth. It will not crack, has no seams to leak, and will last a lifetime. The whole top swings off, making a 13-inch opening through which to feed fuel.

The cold air draft pipe or chamber is outside of the body of the heater, and cannot become heated, which insures at all times a strong, steady down draft through and under the fire. Such results cannot be obtained with a heater in which the draft chamber is on the inside of the body next to the fire, as it becomes heated, which forces the air upward so that little or no air goes through the fire.

The smoke pipe of the Twentieth Century Heater, which is made of galvanized iron, is furnished with hood and damper, and the cold air draft chamber with sliding shut-off, making perfect draft regulation.

The ashes are removed without disturbing the fire or removing the heater from the tank by first hooking the poker through the bale on the basket grate, and lifting it out fire and all, and next the ash pan. The weight of the heater keeps it at the bottom of the tank without the use of anything to fasten it down.

The Twentieth Century will keep forty barrels of water from freezing with the temperature 10 degrees below zero.

By a secret process we are able to keep up condensation in the heater whenever there is fire in it. This moisture evaporates through the smoke pipe, which kills the live sparks of fire, thus reducing to a minimum the liability of firing straw stacks, buildings, etc. Height of heater, 23 inches. diameter, 14 inches; weight, 150 lbs.

Mfrs. price, each . . . . . $10.00 Our net price, each $9.00

"OUT O' SIGHT" MOLE TRAP.

Many of our customers have written us that they have been greatly troubled with moles in their lawns.

The "Out O' Sight" mole trap has many advantages over all others. It is designed and built right, easy to set without danger to operator, can be used in hot beds on account of its height, pedal can be set so sensitive that it is impossible for the mole to pass under the trap without being caught.

It will catch when others fail.

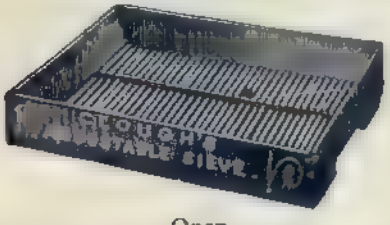
A practical field trial of three months warrants us in saying that this is the best mole trap ever invented.

"Of all the mole traps we have ever used we find the 'Out O' Sight' to be decidedly the best," writes the Department of Agriculture at Washington, D. C.

Full particulars with each trap.

"Out o' Sight" Mole Traps, our net price, each, $1.00 By mail, $1.25

CLOUGH'S ADJUSTABLE SIEVES.



Open.

Closed.

An indispensable implement for farmers and others who grow peas, beans, corn, etc. The mesh being adjustable, it is of great advantage in cleaning all kinds of grain and seeds, also in assorting same when a uniform size is desired.

Mfrs. price, per doz., . . $27.00 Our net price, each, $2.00

BLACK HAWK CORN SHELLER.

This well-known machine is the best and most popular corn sheller made. It has many points of excellence. Chilled bearings. Spring adjusted by thumb nut. Made largely of malleable iron. Can be fastened to box securely and quickly by two clamps of malleable iron. Will shell perfectly clean. Will always throw out cobs Can be used by women and children. So durable repairs are furnished free of charge.

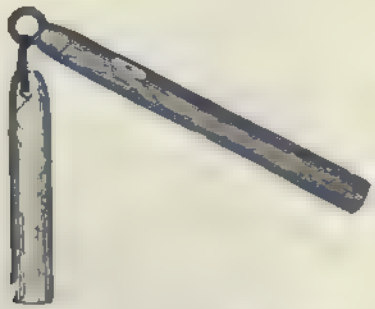
Black Hawk Sheller . . . . . Mfrs. price, each, $3.50 Our net price, each, $3.00

CARVER'S PATENT CORN BINDER.

The strongest and best tie made for corn, grain. bags, etc. The rope will last from three to five years in constant use, and the hook will last forever. The device is cheaper than straw for binding and will be found invaluable when once used.

Corn binders . . . . . Mfrs. price, per hundred, $1.00 Our net price, per hundred, $0.75

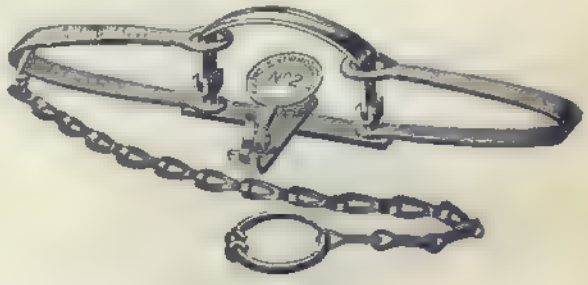
FLAILS.



Made from selected quality hickory. These flails are made with a metallic loop, which is a great improvement over the old style wood cap.

	Mfrs price.	Our net price.
Flails	per doz. $10.00	Each, $0.75

ANIMAL TRAPS.



Newhouse pattern with chain Nos. 1 and 1½, single spring. No 2, double spring.

		Mfrs. price.	Our net price.
No. 1.	Muskrat trap.	per doz.. $5.00	Each, $0.25
" 1½.	Mink " .	" 7.50	" .35
" 2.	Fox " ,	" 10.50	" .40

Packard

A car so good as the Packard could not be the result of one year's work nor the creation of one man's brain.

It is only possible by the cumulative effort year after year of a great organization of skilled specialists.

It is like no other car. It can be measured by no other standards. It is a combination of perfect parts, every one of which reflects the pride of the man who made it.

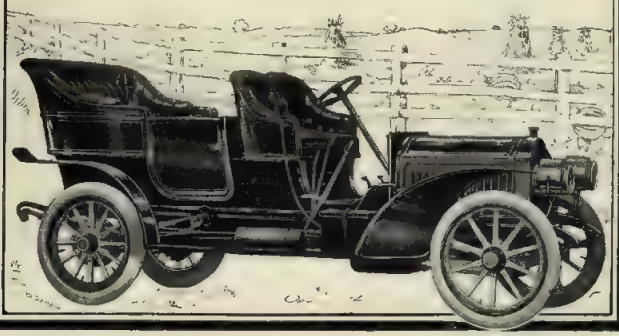
Price with Standard Equipment, $4,000.00, f. o. b. Detroit. For our catalog and name of nearest Packard dealer, address

Packard Motor Car Co., Dept. 11

Member Association Licensed Automobile Manufacturers

Detroit, Mich.

New York Branch 1560 Broadway



Locomobile

GASOLENE CARS

are sold and cared for by the following agencies throughout the United States:

Alabama
Mobile, Guy J. Hartwell

California
San Francisco, Herbert Choynski, 4783 City Hall Ave.

Colorado
Denver, Judge E. A. Colburn

Connecticut
Waterbury, E. H. Towle Co., Harrison Ave.
New Haven, Holcomb Co., 109 Goffe St.
Hartford, Palace Auto Co., 122 Trumbull St.
Norwalk, F. E. Lockwood, & Co., 38 Wall St.
Greenwich, C. H. Minchin

District of Columbia
Washington, Cooke & Stoddard, 1026 Connecticut Ave.

Illinois
Chicago, Locomobile Co., 1354 Michigan Ave.
Ottawa, W. H. Knowles

Indiana
Elkhart, Geo B. Pratt
Muncie, J. M. Long, 420 South High St.

Iowa
Davenport, Davenport Automobile Co.

Massachusetts
Boston, Locomobile Co., 15 Berkeley St.
Springfield, Springfield Automobile Co.
Worcester, D. A. Robinson
Brockton, W. H. Marble
Taunton, H. Carlow & Co., 1 Howard St.
Fall River, Sterling Mfg. Co.
New Bedford, S. C. Lowe Supply Co.

Michigan
Detroit, Detroit Auto Co., 249 Jefferson Ave

Maryland
Baltimore, Callahan, Atkinson & Co., 100 E. Eager St.

Minnesota
Minneapolis, Winston & Walker, 709 Hennepin Ave.

Missouri
St. Louis, Capen Motor Car Co., 4748 McPherson Ave.
Kansas City, Missouri Valley Motor Co.

New Jersey
Lakewood, Joseph B. Hoff
Paterson, Paterson Auto Exchange
Neabright, H. L. Zobel, Jr.
Weehawken, W. A. Jagels

New York
New York, Locomobile Co., 76th St. & B'way
Brooklyn, I. S. Reimsen Mfg. Co., 750 Grand St.
Albany, Taylor Automobile Co., 56 Orange St.
Rochester, J. J. Mandery, 170 South Ave.
Syracuse, Amos-Pierce Auto Co., 109 S. State St.
Buffalo, Jaynes Automobile Co., 683 Main St.
Elmira, Chemung Automobile Co.

Ohio
Cleveland, Ohio Motor Car Co., 892 Erie St.
Cincinnati, Hanauer Auto Co., 136 E. Seventh St.
Columbus, Curtin-Williams Automobile Co.

Pennsylvania
Philadelphia, Locomobile Co., 240 N. Broad St.
Wilkesbarre, Auto Mach. & Repair Co.
Pittsburg, Keystone Auto Co., 6905 Centre Ave., E. E.

Rhode Island
Providence, Davis Auto Co., 7 Dorrance St.

Wisconsin
Milwaukee, Electric Vehicle & Supply Co.

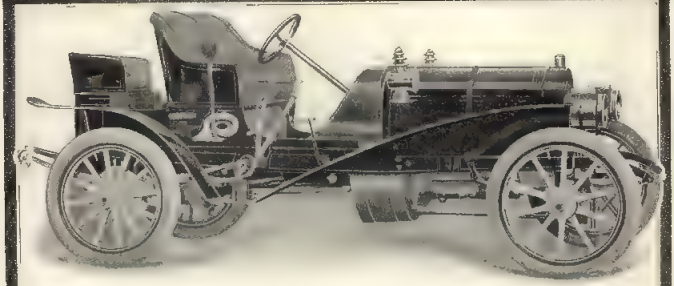
THE Locomobile COMPANY OF AMERICA

Member Association Licensed Automobile Manufacturers.

BRIDGEPORT, CONN.

NEW YORK, Broadway and 76th St. BOSTON, 15 Berkeley St. PHILADELPHIA, 240 N. Broad St.
CHICAGO, 1354 Michigan Ave.

Packard



Before the design of the "Packard 24" was accepted by the Packard Company, three cars were built and driven 21,000 miles over every kind of road and grade that exists between Michigan and Massachusetts.

Packard Motor Car Co., Dept. 11

Member Association Licensed Automobile Manufacturers

Detroit, Mich.

New York Branch 1146 Broadway

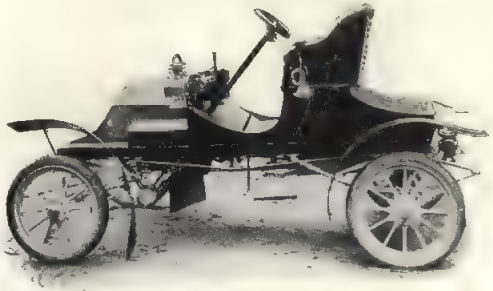
Logan

Air and Water Cooled Cars

For the Season of 1906

6 DISTINCT MODELS 6

AIR COOLED RUNABOUT



MODEL F—10 H. P. Weight, 850 lbs. 2 cylinder opposed in front under hood. Sliding gear transmission. Chain drive.

THAT CAR OF QUALITY AIR COOLED LIGHT DELIVERY

Carrying capacity 1500 lbs. up or down hill.

Speed, one to fifteen miles per hour

Touring Cars 20 and 30 H. P.

Our descriptive catalogue and prices for the asking.

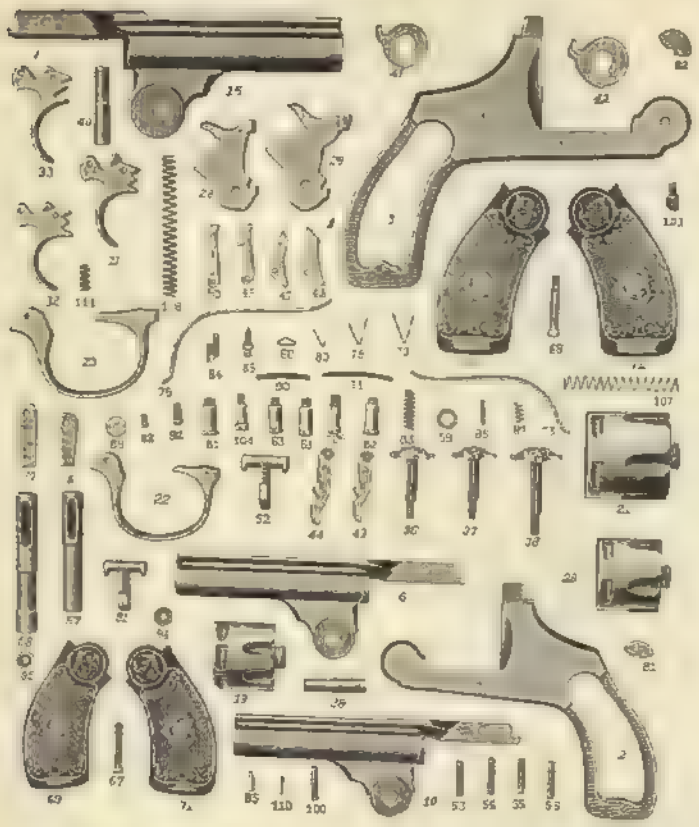
MODEL I—10 H. P. Weight, 1060 lbs.

Logan Construction Co.

CHILLICOTHE, OHIO, U. S. A

Logan 1½ Ton Truck another story.

Component Parts of Iver Johnson Revolvers



SAFETY HAMMER AUTOMATIC, .22, .32 and .38 CAL.

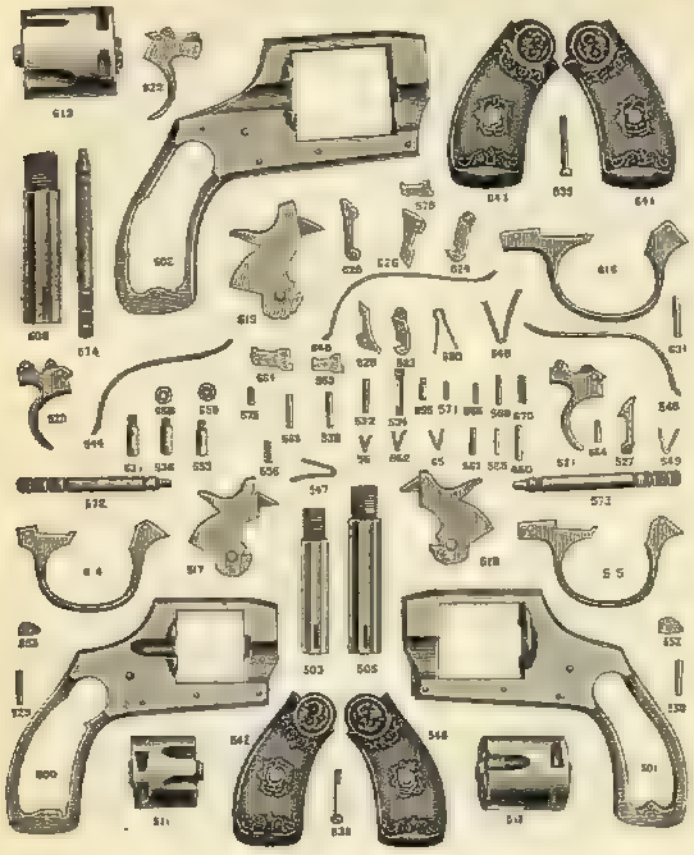
Catalogue No. 22 Cal	32 Cal	38 Cal		Each
28	26	28	Hammer	$0.75
31	32	33	Trigger	.40
36	37	38	Extractor	.40
39	40	41	Extractor Stem	.10
4	4	4	Extractor Cam	.15
43	43	44	Lifter	.15
47	47	48	Seat	.06
49	49	50	Lever	.06
[illegible]	51	52	Barrel Catch	.06
[illegible]	[illegible]	[illegible]	Trigger Pin	.06
[illegible]	[illegible]	[illegible]	Guard Pin	.06
[illegible]	[illegible]	[illegible]	Quill or Base Pin	.12
59	59	59	Extractor Cam Bushing	.06
60	60	60	Cam Bushing Spring	.06
63	63	64	Hammer Screw	.06
67	67	68	Stock Screw	.06
69	69	70	Stock, Right	.15
71	71	72	Stock, Left	.15
73	73	75	Main Spring	.10
76	76	77	Trigger Spring	.06
78	78	79	Lever Spring	.06
81	81	82	Sight	.06
83	83	83	Lever Pin	.06
84	84	85	Firing Pin	.06
[illegible]	[illegible]	[illegible]	Firing Pin Spring	.06
[illegible]	[illegible]	[illegible]	Firing Pin Screw	.06
[illegible]	[illegible]	89	Firing Pin Nut	.06
90	90	91	Cylinder Friction Spring	.10
92	92	92	Guard Screw	.06
94	94	94	Head Escutcheon	.06
95	95	95	Thread Escutcheon	.06
100	100	100	Stock Pin	.06
101	101	101	Barrel Catch Bolt	.06
104	104	105	Barrel Catch Screw	.06
107	107	108	Extractor Spring	.06
109	109	109	Safety Catch Spring	.06
111	111	98	Barrel Catch Spring	.12

SAFETY HAMMERLESS AUTOMATIC.

Catalogue No. 32 Cal.	38 Cal.		Each
4	5	Frame	$1.40
10	..	Barrel, 3 inch	[illegible]
..	15	Barrel, 4 inch	[illegible]
11	11	Barrel, 4 inch	[illegible]
12	12	Barrel, [illegible]	[illegible]
13	13	Barrel, [illegible]	[illegible]
14	..	Barrel, 2 inch	[illegible]
20	21	Cylinder	.85
24	25	Guard	.20
29	30	Hammer	.35
34	35	Trigger	.40
37	38	Extractor	.40
39	40	Extractor Stem	.10
41	42	Extractor Cam	.15
45	46	Lifter	.15
48	50	Lever	.20
51	52	Barrel Catch	.06
53	54	Trigger Pin	.06
55	56	Guard Pin	.06
57	58	Quill or Base Pin	.12
59	59	Extractor Cam Bushing	.06
60	60	Cam Bushing Spring	.06
61	62	Joint Screw	.06
65	66	Hammer Screw	.06
67	68	Stock Screw	.06
69	70	Stock, Right	.15
71	72	Stock, Left	.15
74	75	Main Spring	.10
76	77	Trigger Spring	.06
78	79	Lever Spring	.06
81	82	Sight	.06
83	83	Lever Pin	.06
84	85	Firing Pin	.06
86	87	Firing Pin Spring	.06
89	89	Firing Pin Nut	.06
90	91	Cylinder Friction Spring	.10
92	92	Guard Screw	.06
111	93	Barrel Catch Spring	.12
94	94	Head Escutcheon	.06
95	95	Thread Escutcheon	.06
96	97	Cap or Slide	.06
98	99	Safety Catch	.06
100	100	Stock Pin	.06
101	101	Barrel Catch Bolt	.06
102	103	Cap Pin	.06
104	106	Barrel Catch Screw	.06
106	106	Safety Catch Pin	.06
107	108	Extractor Spring	.06
109	109	Safety Catch Spring	.06
110	110	Lifter Pin	.12

When Ordering Parts give Number and Name of Part wanted also Model and Caliber of Revolver. All Parts from Factory.

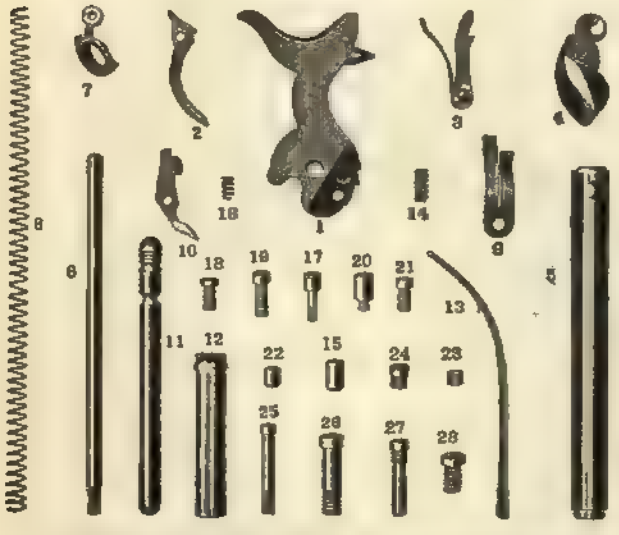
Component Parts of Iver Johnson Revolvers



MODEL 1900 DOUBLE ACTION.

Catalogue No. .22 Cal	32 Cal	.38 Cal		Each
500	501	602	Frame	$1.25
503	505	608	Barrel 2½ inch	.50
504			Barrel 4 inch	1.00
	506	609	Barrel 4½ inch	1.00
	507	610	Barrel 6 inch	1.50
511	512	613	Cylinder	.50
514	515	616	Guard	.25
518	517	619	Hammer	.25
520	521	622	Trigger	.25
523	523	624	Lifter	.10
525	525	626	Sear	.08
527	527	628	Lever	.08
529	530	631	Trigger Pin	.02
532	533	631	Guard Pin	.02
535	536	637	Hammer Screw	.04
534	538	639	Stock Screw	.04
540	540	641	Stock, Left	.15
542	542	643	Stock, Right	.15
544	545	646	Main Spring	.10
547	547	648	Trigger Spring	.06
549	549	650	Lever Spring	.02
651	651	651	Sear Spring	.02
652	553	652	Sight	.04
554	554	655	Lever Pin	.02
566	566	566	Cylinder Friction Stud	.02
556	670	670	Cylinder Friction Spring	.02
658	658	658	Head Escutcheon	.02
659	659	659	Thread Escutcheon	.03
660	660	660	Stock Pin	.02
561	561	662	Snap Spring	.02
576	563	664	Snap	.08
567	565	668	Snap Pin	.02
568	560	631	Sear Pin	.02
571	571	571	Lifter Pin	.02
572	573	674	Center Pin	.10
675	675	675	Friction Pin	.05

Component Parts of Colts Revolvers



SINGLE ACTION ARMY AND *BISLEY.

No.		Each
1	Hammer	$0.85
2	Trigger	.22
3	Hand and Hand Spring	.27
	Hand Spring	.03
4	Gate	1.00
5	Ejector Tube	1.50
6	Ejector Rod	.27
7	Ejector Head	.50
8	Ejector Spring	.12
9	Sear and Bolt Spring	.08
10	Bolt	.28
11	Base Pin	.42
12	Base Pin Bushing	.40
13	Main Spring	.35
14	Gate Spring	.02
15	Base Pin Catch	.05
16	Base Pin Catch Spring	.02
17	Base Pin Catch Screw	.05
18	Front Guard Screw	.05
19	Rear Guard Screw (2)	.05
20	Ejector Tube Screw	.05

No.		Each
21	Back Strap Screw (2)	$0.05
	Front Strap Screw	.05
22	Gate Catch	.02
23	Gate Catch Screw	.05
24	Sear and Bolt Spring Screw	.05
25	Stock Screw	.05
26	Hammer Screw	.05
27	Trigger and Bolt Screw	.05
28	Main Spring Screw	.05
	Lock Frame	6.00
	Barrel	3.00
	Barrel Sight	.25
	Barrel Stud	.10
	Cylinder	3.00
	Firing Pin	.10
	Trigger Guard	1.65
	Back Strap	1.25
	Stocks, per pair	.75
	Escutcheons, per set	.05
	Recoil Plate	.05
	Firing Pin Rivet	.02

*For prices of Bisley Parts which are diffrent from corresponding parts of Single Action Army, see below. All other parts same as of Single Action Army. In ordering give number of part. Extra price charged for Target Revolver Parts.

This Revolver is the Single Action Army improved, having a longer handle and firmer grip. The design of hammer, trigger and lock work has been so changed as to produce a lighter and smoother action, all of these points have been introduced without sacrificing the accuracy, simplicity and durability of the popular Single Action Army Revolver.

The following parts are diffrent from the corresponding Parts in the Single Action Army.

Hammer	$1.00	Main Spring	$0.50	Lock Frame	$6.00
Hammer Stirrup	.25	Hand and Hand Spring	.50	Trigger Guard	1.65
Trigger	.40	Hand Spring	.05	Back Strap	1.25
		Stocks, per pair	.75		

When Ordering Parts give Number and Name of Part wanted, also Model and Caliber of Revolver.
All Parts from Factory.

The 20th Century Muffler

For the Motor Cycle

For the Touring Car

No engine too large

No engine too fast

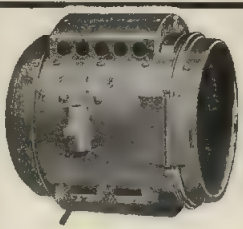
Pat. applied for

Maintaining the standard of excellence and efficiency of our timers both for two- and four-cycle engines, we now present our

20th Century Pressed Steel Muffler

It is compact, strong, rigid and indestructible with practically no back pressure, eliminating muffler explosions and has no cut out. Our prices and circulars will interest you

The Powell Mfg. Co., Clinton, N. Y.



Peck Pilot Lamps

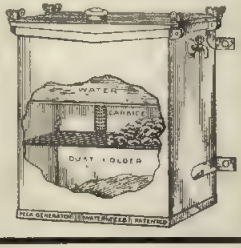
ARE THE

Satisfactory Kind.

Every part of this lamp is the BEST known in lamp making. In every lamp 20 screw bolts and 22 rivets make for strength and service, and cut out repairs. Behind every Headlight and Searchlight that we make is 12 years of experience, besides this, we put every style through a season's test on our own car. We make "QUALITY Lamps."

Our Generators go through the same test, and this season they have given satisfaction to thousands of users. They supply 2 or more lamps equally well—last all night—or can be shut off and turned on at will Cleaned and recharged on the road in 2 minutes without the use of tools or soiling the hands

They also are the SATISFACTORY KIND



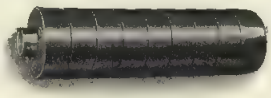
CATALOGUE ON REQUEST

The Scoville & Peck Co.

NEW HAVEN, CONN.

The 20th Century Muffler

For the Motor Cycle



For the Touring Car

No engine too large

No engine too fast

Pat. applied for

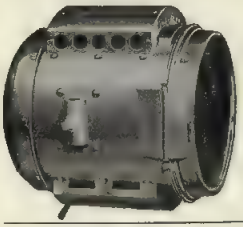
Maintaining the standard of excellence and efficiency of our timers both for two- and four-cycle engines, we now present our

20th Century Pressed Steel Muffler

It is compact, strong, rigid and indestructible with practically no back pressure, eliminating muffler explosions and has no cut out. Our prices and circulars will interest you.

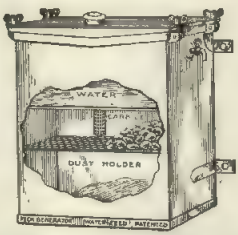
The Powell Mfg. Co., Clinton, N. Y.

PECK PILOT LAMPS



The style and quality of these lamps make them suitable for the finest cars. They project a penetrating light due to the fine quality of our Mirror Reflectors and the special care given to all details of construction. They are the **Reliable Kind** and built for hard service. They cost no more than many so-called "good lamps."

A WORD ABOUT GENERATORS



Our popular Generator for the past year is known as No. 2 Touring Size. We shall continue it for the season of 1906, as the verdict of users is: "Best generator we ever saw—absolutely no trouble—perfect results." No need to change every year when we have one that gives such perfect satisfaction. Catalogue on request.

The Scoville & Peck Co.

NEW HAVEN, CONN.

RILEY "Auto" ROBES

THE ONLY ROBES
that harmonize with the Automobile
and the only ones in keeping with "Smart" Outfits

WIND-PROOF
DUST-PROOF
WATER-PROOF
OIL-PROOF
ACCORDING
TO SEASON

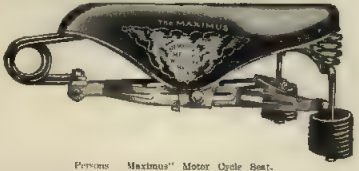
FOR
SPRING
SUMMER
AUTUMN
OR
WINTER

Forty Styles and Prices Illustrated Catalog on request
WM. B. RILEY & CO., *Makers*, PHILADELPHIA

"Riley Robes are Right"

Persons' "Maximus" Saddle

Persons Mfg. Co., Worcester, Mass., have in their "Maximus" motor cycle saddle a wonderfully comfortable seat and a great vibration absorber, these features being the result of the Duplex Compensating Springs employed in the construction of the "Maximus" Saddle and Persons Motor Seat. In the saddles Maximus and Person's Motor Seat rebound, or vibration, according to the size or number of obstructions encountered is annulled or absorbed within the springs in the following manner: Each pair of springs the upper and lower, differs from the other in diameter of coil, diameter of wire, pitch of coil, direction of coil, length of wire in coil, and direction of action of spring. When under load the upper springs are in compression and they in turn extend the lower springs, putting them in tension. Neither pair of springs being in "tune" or sympathy with the other, owing to their differing in every detail pression springs, the resilience of these and dimension, neither will transmit the blows or vibration received by the other. Thus when the cycle traveling at speed passes over an obstruction, the underframing of the saddle is made to approach the rider, but the machine instantly returns to its level, without the rider having been disturbed or any "rebounds" resulting. In event of an extreme rise being taken by the wheels of the machine and the girder brackets being made to reach the base of the upper or compsprings remains to protect the rider against jar. Normally, however, the lower springs will be distended from a half to one inch and the upper springs compressed about three-eighths of an inch, according to the weight of the rider.

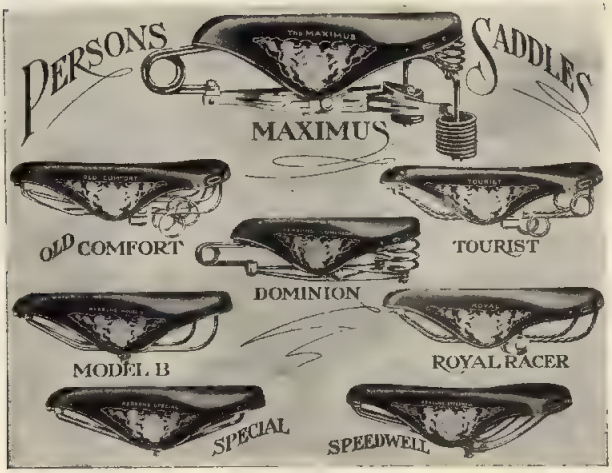


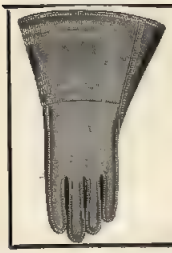
Persons "Maximus" Motor Cycle Seat.

ATTENTION Automobile Manufacturers!

We have perfected a new system for trimming and upholstering Automobiles, by which we can save you money.
Write us for particulars.

B. F. EVERITT, 63-65 Fort St., (East) Detroit, Mich.





WE STAND BACK

OF EVERY PAIR OF GAUNTLETS THAT WE MANUFACTURE. WE TAN AND DRESS OUR OWN LEATHER, AND YOU GET THE BENEFIT IN

STYLE PRICE QUALITY

Write for Samples and Prices to

THE CLARK GLOVE CO., Peabody, Mass.

STAVE SAWING MACHINE.

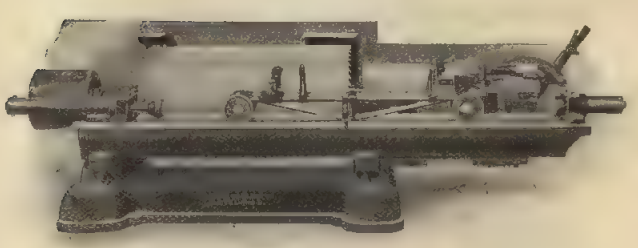


FIG 2617.

FOR SAWING TIGHT AND SLACK BARREL STAVES.

PRICES, WEIGHTS, DIMENSIONS AND SPEEDS OF GERLACH STAVE SAWING MACHINES.

Diameter of Saw, Inches.	Length of Saw Over all.	Length of Staves that may be cut, Inches	Floor Space, Feet.	Approximate Net Weight Pounds.	Approximate Weight Boxed for Export, Pounds.	Cubic Feet.	Approximate Horse-Power for Greatest Output.	Diameter and Face of Pulley.	Speed, Revolutions per Minute	Price.
14	38	14 to 22	3 x 9	1600	1900	75	10	10 x 10	2300	$350 00
14	38	14 to 24	3 x 9	1700	2000	90	10	10 x 10	2200	375 00
16	38	14 to 24	3 x 9	1800	2200	100	12	10 x 10	2200	400 00
18	40	16 to 28	3 x 9	2000	2400	100	12	12 x 10	2100	450 00
20	42	18 to 30	3½ x 9½	2400	2600	110	15	12 x 10	2000	475 00
22	44	20 to 32	3½ x 9½	2800	3360	130	20	14 x 13	1900	500 00
24	46	20 to 34	3½ x 11	3000	3600	130	25	14 x 13½	1800	550 00
24	48	20 to 36	3½ x 11	3200	3840	152	25	14 x 13½	1800	575 00
26	48	20 to 36	3½ x 12	3300	3960	175	25	16 x 13½	1600	600 00

THE PATENT CENTENNIAL HEADING TURNER.

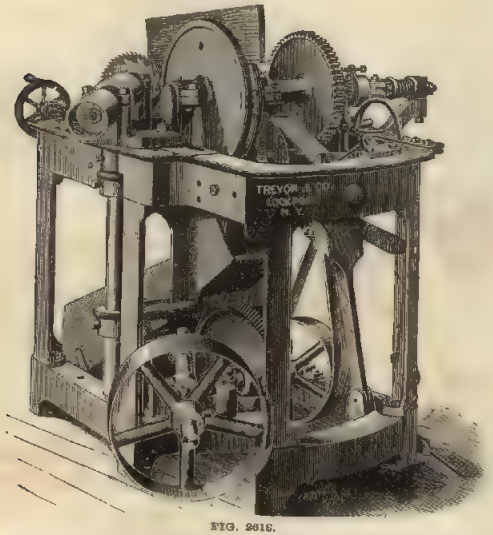


FIG. 2816.

These turners will circle any size of slack work heading from a 10-inch nail keg to a 20-inch head, and where desired can be arranged to turn up 24-inch heads.

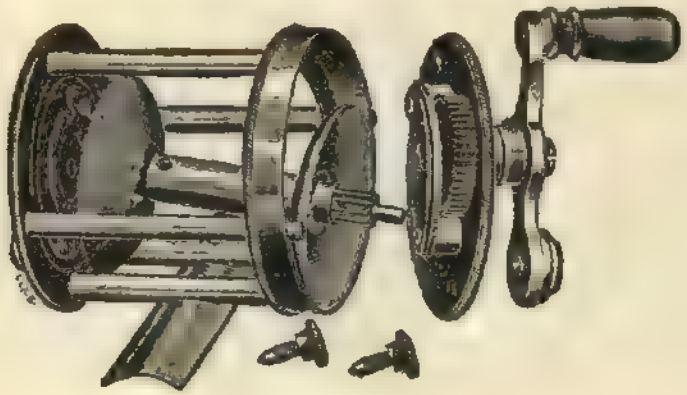
This machine is also adapted to circling uneven tight barrel headings.

In ordering state size of heads to turn, whether tight or slack work.

Centennial Turner for slack work, with one set of clamps and saws	$235.00
Countershaft for same	25.00
Centennial Headings for tight work, one set of clamps and saws	250.00
Centennial Turner for both slack and tight work, with clamps and saws for 17⅛-inch slack heads and clamps and saws for 19⅛-inch tight heads	275.00
Countershaft for combined turner	25.00

Fishing Reels

QUADRUPLE MULTIPLYING.



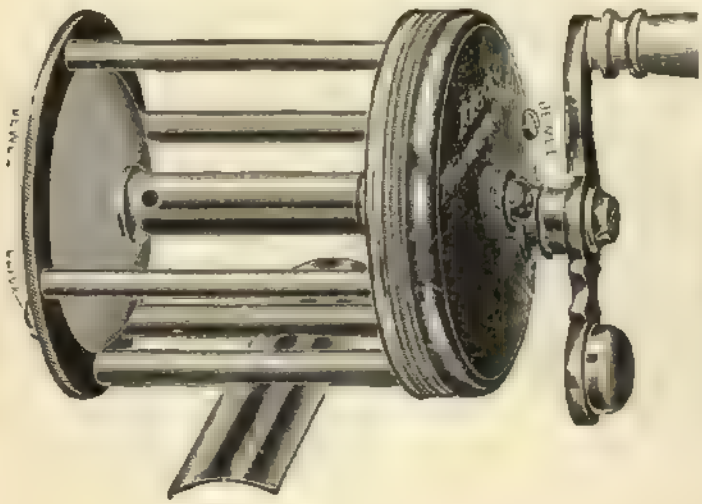
Quickapart Casting.

Nickel Plated, Steel Pivots, Steel Axle and Pinion.

No.		Per Doz
T22—	Capacity 60 yards,	$44.00

One in a Box

QUADRUPLE MULTIPLYING.



Ideal Tournament, Casting.

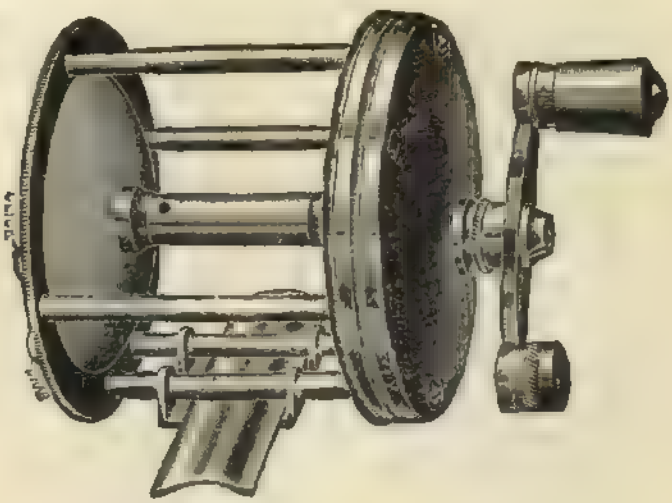
Quadruple, German Silver, Extra Quality Steel Pivots, Steel Axle and Pinions

No.	Yards.	Each
K2—	60,	$9.00

Quadruple, Jeweled, German Silver, Extra Quality, Steel Axle and Pinion.

No.	Yards	Each
K2½	60,	$11.00

One in a Box



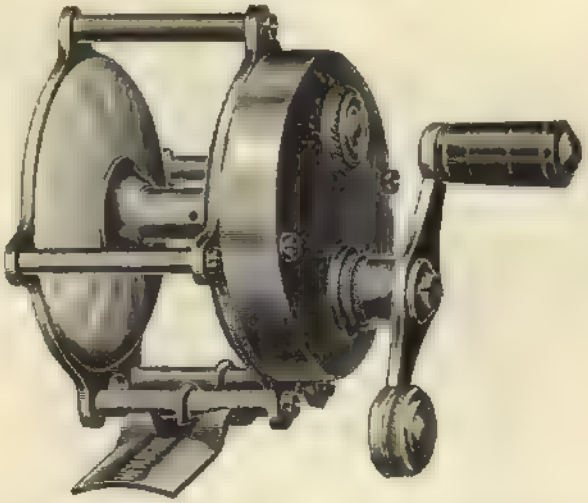
Climax.

Quadruple, Nickel Plated, Steel Pivots, Steel Axle and Pinion

No.	Yards.	Per Dozen
Q40—	40,	$14 50
Q60—	60,	15 50
Q80—	80,	17 50

Fishing Reels

DOUBLE MULTIPLYING.

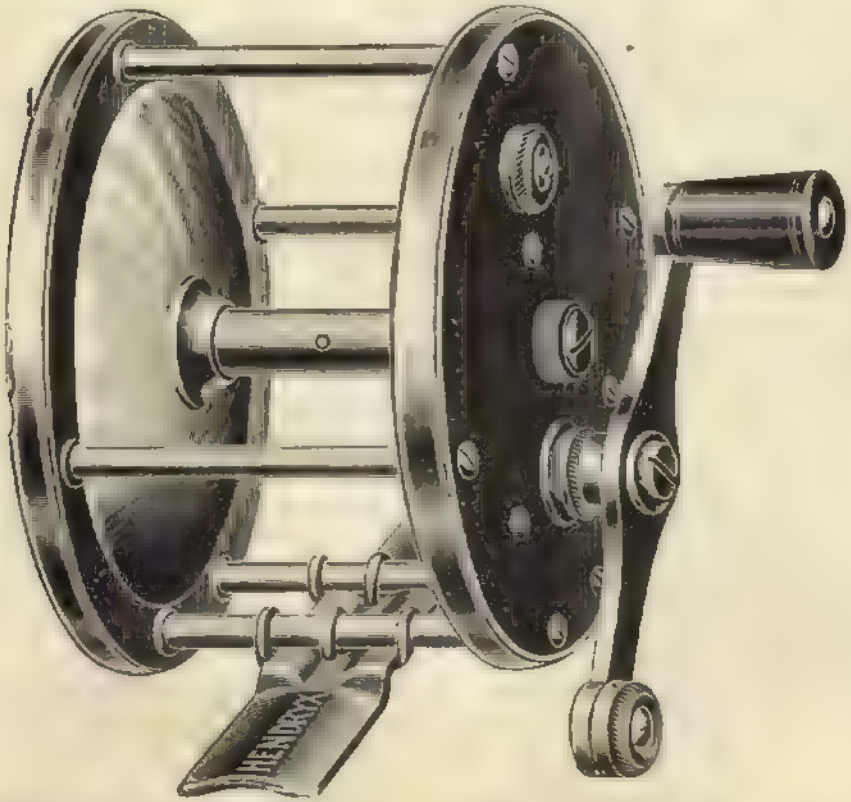


Brass, Raised Pillar, Balanced Handle, Screwed, Patent Adjustable Slide Drag and Back Sliding Click.

No	Yards.	Diam Disc	Per Dozen
2904P	40	2 inches,	$7.00
2906P	60	2¼ inches,	8 00
2907P	80	2½ inches,	9 00
2908P	100	2¾ inches,	10.00

Nickel Plated Brass, Raised Pillar, Balanced Handle, Screwed, Patent Adjustable Slide Drag and Back Sliding Click.

No.	Yards.	Diam. Disc.	Per Dozen
2904PN	40	2 inches,	$8.00
2906PN	60	2¼ inches,	9 00
2907PN	80	2½ inches,	10.00
2908PN	100	2¾ inches,	12.00



DOUBLE MULTIPLYING.

Made with Solid Rubber Discs, Brass Nickel Plated Spool, Cross Plate and Balance Handle, Wrought Brass Gear running in a fine steel Pinion, Polished Steel Pivots revolving in Adjustable Globe Bearings with Oil Caps, Patent Adjustable Slide Drag, Brass Ratchet and Adjustable Back Sliding Brass Click

No.	Yards.	Diam. Disc	Pillar.	Per Dozen
M9¼	150	3½ in.,	1⅜ in. long,	$70.00
M9½	200	3½ in.,	1⅝ in. long,	82.00

No.	Yards.	Diam Disc	Pillar	Per Dozen
M9¾	250	3½ in.,	2½ in. long,	$90.00

One in a Box.

Snakewood Minnows

Plain Snakewood Minnows, Assorted Green and White Bodies, 3x½ in.

Per Doz
$7.00

Weedless Snakewood Minnows, Assorted Green and White Bodies 3x½ in.,

Per Doz
$11.00

Phantom Minnows

No. Size No.,		1	2	3
1409—Brown Color,	Per Doz.,	$4.50	$4.50	$4.50
1410—Blue Color,	" "	4.50	4.50	4.50
1411—Silver Color,	" "	4.50	4.50	4.50

No. Length in.,		2¾ in.	3½ in.
2171—Fancy Back, in Colors,	Per Doz.,	$6.00	$9.00
2173—Rainbow Colors,	" "	6.00	9.00
2178—Olive Green Color,	" "	6.00	9.00
2180—White Color,	" "	6.00	9.00
2181—Red Color,	" "	6.00	9.00

Each One in Wooden Box.

Spoon Baits

TACOMA.

No. 80.

No.		Per Doz.	No.		Per Doz.
1572	—All Nickel,	$4.50	1576	—All Brass,	$4.50
1573	—Nickel and Copper	4.50			

Artificial Bait

SOFT RUBBER.

Casting Minnow.

Grasshopper No. 9.

Bee No. 18.

Froggie No. 1A

Frog No. 1

No.		Per Doz
5	—Small Casting Minnow,	$3.00
5A	—Large Casting Minnow,	4.50
9	—Grasshopper,	3.00
18	—Bumble Bee,	3.00

Large Minnows, ½ Dozen; Balance 1 Dozen on a Card.

No.		Per Doz.
1A	—Froggie,	$3.00
1	—Frog,	4.50

No. 1A, ½ Dozen; No. 1, ¼ Dozen on a Card.

THE MOTOR CAR EQUIPMENT CO.

Manufacturers, Importers and Jobbers of

AUTOMOBILE ACCESSORIES

U. S. Agents for

BLANCHARD FAMOUS FRENCH HORNS

The Phare Continental

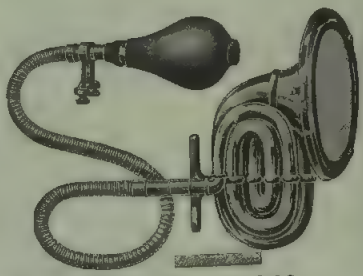
Fifteen Styles — Head Lights

Latest Designs — Side Lights

Beautiful Lamps — Tail Lights

BLANCHARD FAMOUS FRENCH HORNS

SOUNDS LIKE A FOG HORN



The Continental Calliope, Price, $25.00

(The Latest Musical Fad)

55 Warren Street, 1645-47 Broadway, New York

1000 Miles Without a Single Adjustment

Won the Glidden Trophy for the

PIERCE

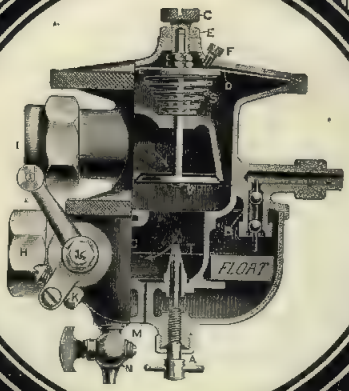
There can be no more conclusive proof of the superiority of the Pierce Great Arrow chassis for touring purposes. An American car for American roads—the Pierce is the triumphant result of six years' experience with the finest materials and a thorough knowledge of American conditions.

THE GEORGE N. PIERCE COMPANY

Buffalo, N. Y.

Manufacturers of Pierce Cycles

Members of Association of Licensed Automobile Manufacturers



KINGSTON AUTOMATIC CARBURETOR

PRICE $50.

Above is illustrated the latest creation of Byrne, Kingston & Co.—the most successful carburetor in the world. It offers a combination of features and advantages never heretofore introduced. Our faith in this carburetor is indicated by our guarantee. If it does not suit you, return it within thirty days and we will refund you your money, and ask you your troubles afterward.

BYRNE, KINGSTON & CO., Kokomo, Ind., U.S.A.

UPRIGHT MAGIC LANTERNS.

Polished brass body and smoke stack. enameled support for lens. Mounted on wooden base.. Each lantern packed in box. With six slides

5570-22½ Height, 9 in., base, 2¾ x 4½ in ½ dozen in a pkg.
Per doz., $2.25

5571-45 Height, 10½ in.; base, 2¾ x 4¾ in ½ dozen in pkg
Per doz., $4.50

5572-90 Height, 12½ in.; base, 3½ x 6 in Per doz., $9.00

5573-120 Height, 15½ in ; base, 3½ x 6½ in. Per doz., $12.00

GLOBE SHAPED LANTERN.

Brass body. Nickel base. Fine lens on enameled support. Good reflector. Each lantern packed in fancy display box with 12 slides. Assorted round and oblong shape.

5574-150 Height, 9½ in base, 3½ x 6¾ in. Per doz., $15.00

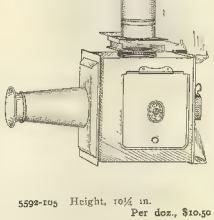
5575-240 Height, 10½ in.; base, 3½ x 7½ in. Per doz., $24.00

5576-360 Height, 11¾ in ; base, 4 x 8 in . Per doz., $36.00

5577-480 Height, 13¾ in., base, 5 x 8¾ in. Per doz., $48.00

CELEBRATED PLANK MAGIC LANTERNS.

Plank's celebrated Magic Lantern. Body made of Russia iron. Best quality reflector; kerosene lamp; glass chimney and fine lens. Each with 12 glass magic lantern slides, put up in handsome wood display box. These lanterns are absolutely perfect. Packed each in a box.



5592-105 Height, 10½ in.
Per doz., $10.50

5593-150 Height, 10¾ in.
Per doz., $15.00

5594-180 Height, 11 in
Per doz., $18.00

5595-240 Height, 11½ in.
Per doz., $24.00

5596-300 Height, 11¾ in
Per doz., $30.00

5597-360 Height, 13 in.
Per doz., $36.00

MAGIC LANTERNS.

New style magic lantern made of sheet iron. Gilt feet and lens. Glass globe. Good reflector and lens. Same style as the Plank line illustrated above.

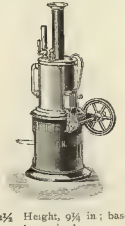
5565-22½ Height, 8 in. ½ dozen in a box. Per doz., $2.25

5566-45¾ Height, 10¼ in. ½ dozen in a box Per doz., $4.25

5567-90 Height, 12½ in Each in a box Per doz , $9.00

UPRIGHT STEAM ENGINES.

Toy Steam Engine.. Brass boilers with piston rod and enameled iron fly wheel and whistle; enameled base.



5578-22¾ Height, 9½ in ; base, 3¼ x 3¼ in ½ dozen in box.
Per doz., $2.25

5579-45 Height, 11½ in ; base, 4 x 4 in. ½ dozen in box. Per doz., $4.50

5580-90 Height, 15 in.; base, 5 x 5 in.
Per doz., $9.00

UPRIGHT STEAM ENGINES.

Made of sheet iron with brass trimmings. Red enamel side wheel, piston rod, whistle and alcohol lamp.

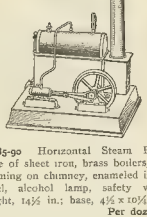
5586-45 Height, 9½ in.; diameter of base, 3¾ in. Per doz., $4.50

5587-75 Height, 10½ in.' diameter of base, 4 in Per doz., $7.50

5588-90 Height, 11¾ in.; diameter of base, 4¾ in Per doz., $9.00

5589-120 Height, 13½ in ; diameter of base, 4½ in. Per doz., $12.00

HORIZONTAL STEAM ENGINE.



5585-90 Horizontal Steam Engine. Made of sheet iron, brass boilers, brass trimming on chimney, enameled iron fly wheel, alcohol lamp, safety whistle Height, 14½ in.; base, 4½ x 10¼ in
Per doz., $9.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

TUBEPHONES

Frame made of ¾-inch stained wood. Solid brass tubing.. Each packed in a box with sticks.. Produces a clear bell tone.

5946-20 6 keys. Length, 10½ in. ½ dozen in box Per doz., $2.00

5947-45 10 keys. Length, 14 in. Each in box. Per doz., $4.50

5948-90 15 keys. Length, 21 in Each in a box. Per doz., $9.00

BANJO.

2548-90 Banjo with sheepskin head Nickel-plated binding, ebony finger board, brass frets, strung with 8 steel strings. Diameter, 9 in. This is a practical instrument and will produce good music Each in a box with instruction book Per doz., $9.00

MANDOLIN.

2549-90 Banjo Mandolin. Made of polished and varnished hard wood, nickel plated tail piece, ebony finger board, brass frets. Diameter, 8¾ in. Each in a box with instruction book. Per doz., $9.00

POP PISTOLS.

5000-4 Wooden Pop Pistol By pulling the handle back and forth pistol closes and pops automatically; natural wood finish with fancy red and blue stripes. Length, 8½ in. Packed 1 dozen in box Per doz., $0.40

5002-9 New style Pop Pistol Self-loading; by pulling the handle back and forth pistol pops automatically; painted in bright colors with harmonica flute on top. Total length, 10 in. Packed 1 dozen assorted in box Per doz., $0.90

5001-8½ New style Pop Pistol Made in imitation of dagger; painted in bright colors; by pulling the handle back and forth it pops automatically. Total length, 12 in Packed 1 dozen in box Per doz., $0.85

4238-7½ New Rapid Fire, double acting Length, 7½ in 1 dozen in box Per doz., $0.75

HARMLESS PISTOLS.

4374-40 Elastic Tip Target Game with pistol, tips, target stand and target. Length, 9 in Packed each set complete in box. Per doz. sets, $4.00

TOY GUNS.

4239-7½ 17½ in. long. Shoots corks 1 dozen in box. Per doz., $0.75

4240-20 26 in. long. Shoots corks ½ dozen in box. Per doz., $2.00

4241-20 Creedmore Gun. 32 in. long Shoots paper caps and sticks; plain finish, tin bayonet ½ dozen in box Per doz., $2.00

4243-40 31 in. long. Shoots rubber balls Very handsome finish. This gun is arranged with new patented pull back trigger. Each packed in a pasteboard box. Per doz., $4.00

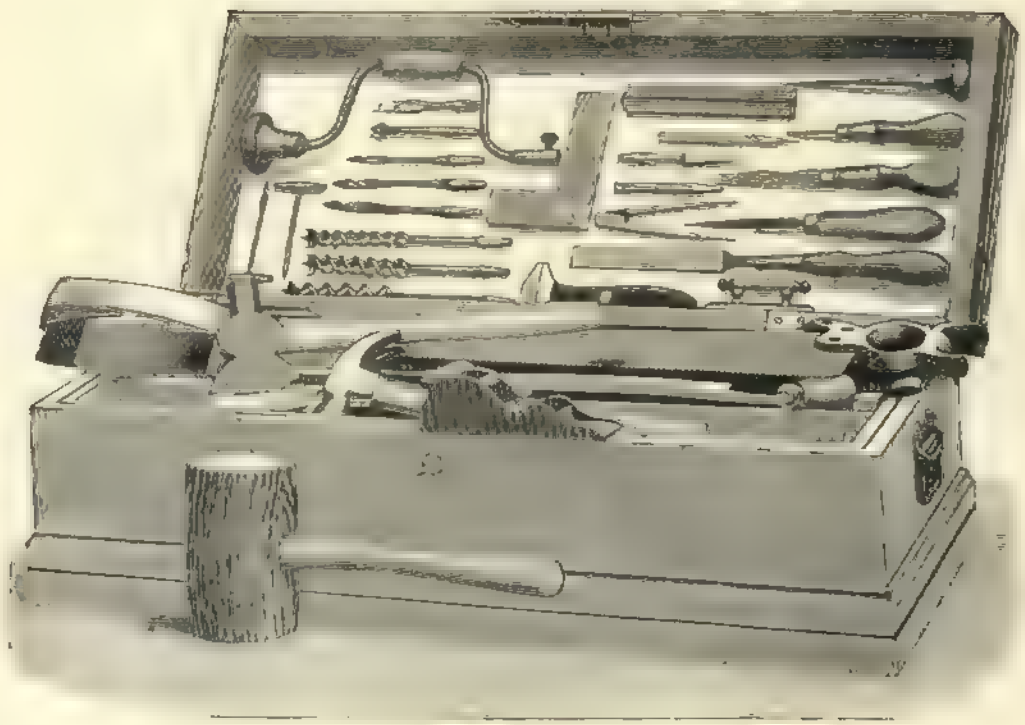
AIR RIFLES.

7133-55 The Warrior Air Rifle is too well known to need anything said in its behalf. The barrel and working parts are made of metal, finely nickel-plated. Each rifle is sighted and tested before leaving the factory. Shoots BB shot with great force and accuracy. Length, 31 in. Per doz., $5.50

7080-75 Warrior Repeating Air Rifle New features and up-to-date. The simplest and strongest repeating air rifle ever placed on the market The barrel and working parts are made entirely of steel This rifle is a strong and accurate shooter, the repeating is perfect in its action Walnut stock, accurate sights Each rifle carefully sighted and tested Entire length, 31 in Per doz., $7.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Chests and Tools.



Code Amanebas. Each

No. C –Planters' Tool Chest, with Tools Selected from Regular Stock and Quality of the Best, Chest 37½ In. Long, 20 In. Wide, 18 In. High, ... $90.00

Contents of Chest No. C.

1 Set Lightning Socket Firmer Chisels, Leather Capped (12 Chisels), One Each, ⅛, ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼, 1½, 1¾, 2 In.,
1 Set Lightning Auger Bits, One Each, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16-16ths.
1—Ratchet Brace, Nickel Plated, 10 In. Sweep,
2—Socket Firmer Gouges, One Each, ½ and ¾ In.,
1—Socket Framing Chisel, 1 In.,
3—Screw Drivers,
3—Screw Driver Bits, Assorted Sizes,
1—Countersink, For Metal,
1—Countersink, For Wood,
1—Countersink, Flat, For Iron,
1—Spring Punch, 4 Tube,
1—Square Reamer,
1—Nail Set, Cup, Knurled,
1—Gimlet,
3—Saw Files,
1—Try Square, No. 20, 6 In.,
1 Steel Square, No. 3.
1 Bevel,
1—Marking Gauge, No. 61,
1—Oil Stone,
1 Pr. Pliers, Cutting, Button's, 8 In.,
2 Pr. Tinners' Snips,
1—Saw Set, Morrill's,
1—Awl and Tool Handle, No. 6
1 Pr. Calipers,
1 Pr. Wing Dividers, 8 In.,
1—Spoke Shave, No. 51,
1—Back Saw, 12 In.,
1—Compass Saw, 12 In.,
1—Keyhole Saw, 10 In.,
1—Pruning Saw, 11 In.,
1—Coping Saw, Griffin's,
1—Kitchen Saw, 14 In.,
1—Hack Saw Frame, with 12 Blades,
1—Cabinet Scraper,
1—Mitre Box, Perfection,
1—Draw Knife, Wilkinson's Folding Handle, 8 In.,
1—Claw Hatchet, No. 2 Lightning,
1—Nail Hammer, No. 11¾ Lightning,
1—Mallet, No. 1,
1—Plumb Bob, No. 1,
1—Pocket Level, No. 41,
1—Plumb and Level, No. 36,
1—Block Plane, No. 9½, Stanley's,
1—Smooth Plane, No. 122 Stanley's,
1—Jack Plane, No. 127 Stanley's,
1—Fore Plane, No. 129 Stanley's,
1—Boxwood Rule, No. 62, 2 Ft.,
1—Monkey Wrench, 8 In.,
1—Glue Pot, No. 1,
1—Brick Trowel, No. 5, 11 In.,
1—Pointing Trowel, 5 In.,
1—Scratch Awl,
1—Bench Hook,
1—Automatic Drill, with 8 Points,
1—Hand Saw, 26 In. Lightning,
1—Rip Saw, 28 In. Lightning,
1—Panel Saw, 20 In. Lightning.

Horseshoe Magnets.

Nos.	3	4	5	6
Code	Circus	Circling.	Circolammo.	Circolando.
Length Inches,	2½	3	4	6
Per Dozen	$3 00	4.00	6.00	9.00

Gold Pans.

Code Circejorum. Per Dozen

No. 1—Miners' Pressed and Polished Iron, $6 00

Weight, 20 lbs. Per Dozen.

Miners' Horns.

Code Circinabo. Per Dozen

No. 5—Horn, Polished, 7 to 8 In. Long, . $9 00

Weight, 3½ lbs. Per Dozen.

Code Circinale.

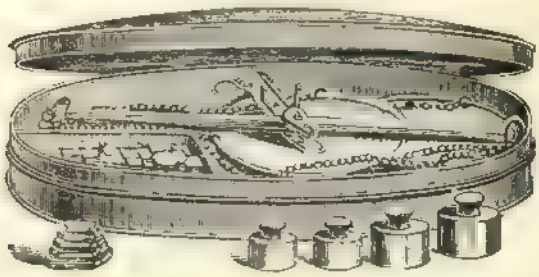
No. 10—Black Rubber, Hard, 9½ In. Long, ... 9.00

Code Circinatur

No. 11—Black Rubber, Flexible, 9½ In. Long, ... 9.00

Weight, 4¼ lbs. Per Dozen.

Hand Gold Scales.



Code Circondl. Per Dozen

No. DK24—4 oz. Troy. 4¾ In Brass Beam, 2 In Pan, in Oval Tin Box, ... $13.50

Code Circonduco.

Weight, 8 lbs. Per Dozen.

No. DK26—8 oz. Troy. 5¼ In. Brass Beam, 2½ In. Pan, in Wooden Box, ... 21.00

Weight, 10½ lbs. Per Dozen.

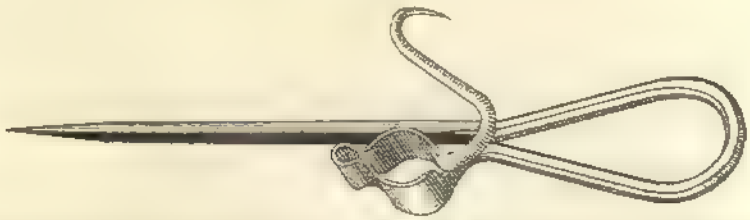
Candle Sticks.

Code Cinturones — Per Dozen

No. 1—Japanned Tin, ... $0.75

Weight, 2¼ lbs. Per Dozen.

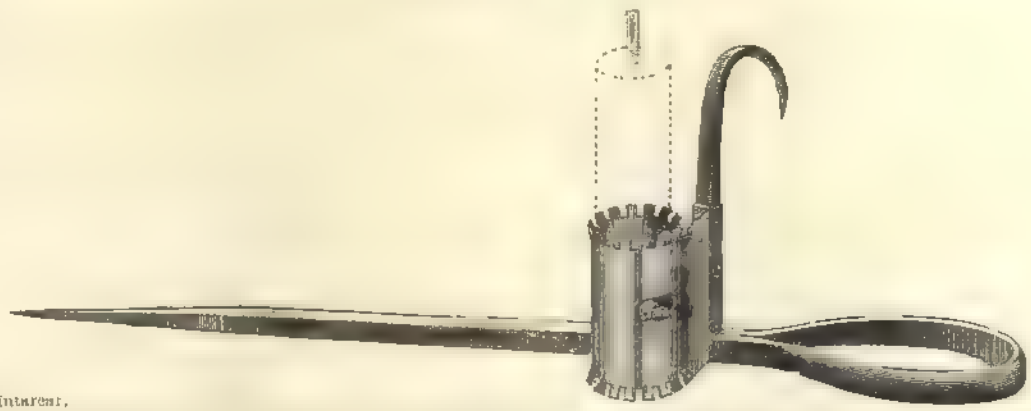
Miners' Candle Sticks.



Code Cinturendo. — Per Dozen

Bonanza, Made of ¼ In Spring Steel, Hand Forged, 6½ In. Spike, 10½ In. Long Over All, . . $10.00

Weight, 3½ lbs. Per Dozen.



Code Cinturent. — Per Dozen

California Pattern, With Special Thumb Knob Spring, Hand Forged and Wrought of Finest Grade Steel, ... $7.50

Weight, 3¼ lbs. Per Dozen

One Dozen in a Box

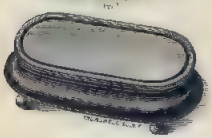
Mortars and Pestles.

Bell Pattern.

Capacity, Quarts,	¼	½	1	2	4	6	8	12	16
Code	Cipresseto.	Cipressi.	Cipressina.	Ciprigna.	Ciprino.	Cipripèdo.	Cirandagem	Cirus os.	Cireabo.
Weight Each, lbs ,	4	4½	9½	17	22	37	45	82	90
Each,	$0.75	1.00	1.25	1.75	2.50	3.00	4.75	7 50	9.00

BAKER & HAMILTON

CLASS SHADES AND STANDS.



When Ordering Glass Shades, Please Observe the Following

FOR A ROUND SHADE.—State the diameter and height, for instance, 6 inches diameter, 9 inches high, or 6x9

FOR AN OVAL, OBLONG OR SQUARE SHADE.—State the width or small diameter, the length or larger diameter and the height; for instance 5 inches small diameter, 10 inches large diameter, and 15 inches high, or 5x10x15

IF STANDS ARE WANTED.—Please so state as they will not be sent unless specially ordered

GLASS SHADES ARE SHIPPED AT PURCHASERS RISK

Shades are carefully packed by an experienced and practical man. Our responsibility ceases when delivery is made to transportation company

The NUMBERS indicate the square inches of glass in the shade. This is ascertained as follows

ROUND SHADES.—Add once the height to three times the diameter.

OVAL SHADES.—Add once the height, twice the large diameter once the small diameter, and three inches over

SQUARE SHADES.—Add once the height, twice the large diameter, once the small diameter and five inches over

When the height of a shade, round, oval or square, is less than the large diameter, it is counted as being of the same number of inches as said diameter

PRICE LIST OF ROUND GLASS SHADES.

No. 7	$0 45	No. 25	$0 50	No. 32½	$1 03	No. 40	$1 40	No. 48	$2 15	No. 55 ½	$3 10	No. 63	$5 25	No. 70½	$10 00
No. 9	25	No. 25½	53	No. 33	1 05	No. 40½	1 43	No. 48½	2 20	No. 56	3 20	No. 63½	5 45	No. 71	10 30
No. 10	25	No. 26	55	No. 33½	1 08	No. 41	1 45	No. 49	2 25	No. 56½	3 30	No. 64	5 60	No. 71½	10 60
No. 12	25	No. 26½	60	No. 34	1 10	No. 42	1 50	No. 49½	2 30	No. 57	3 40	No. 64½	5 70	No. 72	10 90
No. 14	25	No. 27	65	No. 34½	1 13	No. 42½	1 57	No. 50	2 35	No. 57½	3 50	No. 65	5 80	No. 72½	11 20
No. 15	25	No. 27½	70	No. 35	1 15	No. 43	1 70	No. 50½	2 40	No. 58	3 65	No. 65½	5 95	No. 73	11 25
No. 16	25	No. 28	75	No. 35½	1 18	No. 43½	1 75	No. 51	2 45	No. 58½	3 75	No. 66	6 15	No. 73½	11 40
No. 17	25	No. 28½	78	No. 36	1 20	No. 44	1 80	No. 51½	2 50	No. 59	4 00	No. 66½	6 30	No. 74	11 60
No. 18	25	No. 29	80	No. 36½	1 23	No. 44½	1 85	No. 52	2 55	No. 59½	4 20	No. 67	6 85	No. 75	11 90
No. 19	25	No. 29½	85	No. 37	1 25	No. 45	1 90	No. 52½	2 60	No. 60	4 45	No. 67½	7 25	No. 76½	12 25
No. 20	28	No. 30	85	No. 37½	1 28	No. 45½	1 93	No. 53	2 65	No. 60½	4 60	No. 68	7 75	No. 76	12 50
No. 21	32	No. 30½	90	No. 38	1 30	No. 46	2 00	No. 53½	2 70	No. 61	4 75	No. 68½	8 00	No. 77	13 25
No. 22	35	No. 31	95	No. 38½	1 33	No. 46½	2 03	No. 54	2 85	No. 61½	4 85	No. 69	8 50	No. 78	13 75
No. 23	40	No. 31½	98	No. 39	1 35	No. 47	2 05	No. 54½	2 95	No. 62	5 00	No. 69½	9 00	No. 79	14 25
No. 24	45	No. 32	1 00	No. 39½	1 38	No. 47½	2 10	No. 55	3 05	No. 62½	5 20	No. 70	9 50	No. 80	15 00

OVAL AND SQUARE SHADES.

Prices of oval and square shades is 75 percent in advance of the above Price List of round shades. Beyond No. 80 the prices are special. Packing and Boxing is extra. The cost is equal to about 10 per cent. of the price of the shade.

STANDS.

Measured from center to center of groove. Oval and Square Stands measured by the long diameter

Round, Ebonized . . Per Inch .80 07
Oval or Square . . Per Inch .10
Round, Gilt . . Per Inch 80 15

WATCH CHECKS.

Prices Include Lettering and Numbering.

BRASS

No. 5546	25 Pairs	$2 00
No. 5547	50 Pairs	3 75
No. 5548	100 Pairs	7 00

GERMAN SILVER

No. 5549	25 Pairs	$2 75
No. 5550	50 Pairs	3 75
No. 5551	100 Pairs	5 50

BRASS

No. 5558	25 Pairs	$2 00
No. 5559	50 Pairs	2 75
No. 5560	100 Pairs	4 00

GERMAN SILVER

No. 5561	25 Pairs	$2 75
No. 5562	50 Pairs	3 75
No. 5563	100 Pairs	5 50

GERMAN SILVER

No. 5564	25 Pairs	$3 75
No. 5565	50 Pairs	5 75
No. 5566	100 Pairs	8 50

BRASS

No. 5567	25 Pairs	$2 00
No. 5568	50 Pairs	2 75
No. 5569	100 Pairs	4 00

PRICES PER SET OF 5 PAIRS
Without Name. Numbered from 1 to 50.

Brass	Brass	Brass
No. 5570 $0 60	No. 5571 $1 75	No. 5572 $1 00
Gilt Finish Silver	Nickle Plated	
No. 5573 $1 00	No. 5574 $1 75	

Extra for stamping name in above 4 styles 80c per set of 50 Pair.
Above Checks also Furnished in Sets numbered from 51 to 100.

BRASS

No. 5552	25 Pairs	$1 50
No. 5553	50 Pairs	2 00
No. 5554	100 Pairs	3 00

GERMAN SILVER

No. 5556	25 Pairs	$2 00
No. 5556	50 Pairs	2 75
No. 5557	100 Pairs	4 00

BRASS

No. 5575	25 Pairs	$2 50
No. 5576	50 Pairs	3 50
No. 5577	100 Pairs	5 00

GERMAN SILVER

No. 5578	25 Pairs	$3 45
No. 5579	50 Pairs	4 75
No. 5580	100 Pairs	6 75

WATCH GLASS OUTFITS.

WATCH GLASS CABINET.

Oak or Walut

No. 25. Plain Front Each $3 25
No 30. Glass Front as illustrated. Each..... 4.00

OAK WATCH GLASS CABINET.

4 Drawers, with 784 Divisions, holding 98 Gross Glasses

No 35. Each $6 50

ASSORTMENT "A".

Consisting of 28 dozen W. B. & Co. Genevas, and 10 dozen W. B. & Co. Mi-Concaves, assorted as follows

GENEVA GLASSES

12– 3 4 5 6 7 8 9 10 11 12 13 14 15 16 H 8
14– 3 4 5 6 7 8 9 10 11 12 13 14 15 16 H 7
16– 3 10 11 12 15 H 7
18– 3 4 5 6 7 8 9 10 11 16 H 7
20– 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 H 6

MI-CONCAVE GLASSES

17 8 9 10 11 12 13 14 16
18– 8 9 10 11 12 13 14 15 16
20– 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
10– 6 7 8 9 10 11 12 13 14 15 16

No. 251 Assortment "A" with Cabinet No 25, complete $12 00
No. 351 Assortment "A" with Cabinet No 35, complete 15 00

ASSORTMENT "B".

Consisting of 68 dozen W. B. & Co. Genevas and 24 dozen W. B. & Co. Mi-Concaves, assorted as follows

GENEVA GLASSES

12– 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 H 7
12 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 H 8
14 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 H 7
14 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15/16 H 8
16 8 9 10 11 12 13 14 15 16 H 7
18– 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15/16 H 7
18– 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15/16 H 8
19 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15/16 H 5
20 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15/16 H 6

MI-CONCAVE GLASSES

1 12 to 12 15/16 Inclusive 4 –18 to 18 15/16 Inclusive
2– 17 to 17 15/16 Inclusive 5 19 to 19 15/16 Inclusive
3 17 to 17 15/16 Inclusive. 6 20 to 20 15/16 Inclusive

No. 252 Assortment B, with Cabinet No. 25, complete $24 75
No. 352 Assortment B, with Cabinet No. 35, complete 27 75

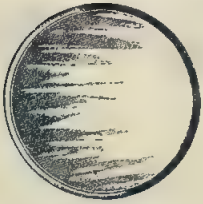
ASSORTMENT "C".

Consisting of 112 dozen W. B. & Co. Genevas, 28 dozen W. B. & Co. Mi-Concaves, 14 dozen W. B. & Co. Lentelles and 8 dozen W. B. & Co. Flat Parallels, assorted as follows

GENEVA GLASSES.	MI-CONCAVE GLASSES	LENTILLE GLASSES.	FLAT PARALLELS.
12 to 12 15/16 inclusive, height 7 and 8.	12 to 12 15/16 inclusive	12 4/16 to 12 10/16 inclusive	20 4 16 to 20 15/16 inclusive
13 to 13 15/16 inclusive, height 7.	15 to 15 15/16 inclusive	14 8/16 to 14 12/16 inclusive	21 to 21 10 16 inclusive
14 to 14 15/16 inclusive, height 7 and 8.	17 to 17 15/16 inclusive	16 to 16 8/16 inclusive	22 to 22 8 16 inclusive.
15 to 15 15/16 inclusive, height 7.	18 to 18 15/16 inclusive	14 10 16 to 16 14/16 inclusive.	
16 to 16 15/16 inclusive, height 7	19 to 19 15/16 inclusive	17 to 17 12/16 inclusive	
17 to 17 15/16 inclusive, height 7.	20 to 20 15/16 inclusive	18 7/16 to 18 13/16 inclusive	
18 to 18 15/16 inclusive, height 7 and 8	21 to 21 15 16 inclusive	19 to 19 15/16 inclusive	
19 to 19 15/16 inclusive, height 5 and 6.		20 to 20 10/16 inclusive	
20 to 20 15/16 inclusive, height 5 and 6		21 to 21 8/16 inclusive	

No. 353 Assortment "C," with Cabinet No. 35, complete $53.00

A Complete Assortment of W. B. & Co. Watch Glasses Always in Stock



BEVEL EDGE GLASSES
FOR FRENCH CLOCKS.

No 201. Each, 25c, per dozen, not fitted, $1 75
If fitted to order each, 60c

Plain Bezel Clock Glasses, for Nickel Alarm Clocks, etc

Sizes 3 to 4 inches	Each, 10c	per dozen	$0 50
Sizes 4 to 5 inches	Each 10c,	per dozen	75
Sizes 5 to 6 inches	Each 10c	per dozen	1 00

Watch Guarantee Printed with Name and Address
No 300 500 for $1.00, 1000 for $1 50

Watch Guarantees in Book Form.
Pages 699 and 700.

WATCH INSULATORS OR NON MAGNETIC WATCH PROTECTORS.

Made in 18, 16, 14, 12, 8, and 0 S. O. F. and Hdg., for thick and thin model cases. When ordering be sure and state just what is wanted

No. 37. Each, 20c, per dozen $1 75

Additional Insulators. Open Face Only

No 38	18s	dozen	$1 00
No. 39	16s	doz n	1 00
No 40	12s	dozen	1 00

POPE Hartford AUTOMOBILES

NEW 1906 POPE-HARTFORD

MODEL F, 20-25 H. P., PRICE $2500 cannot be excelled at anywhere near the price, for quietness, speed, and hill climbing qualities.

MOTOR: Four cylinder, vertical, water cooled engine, with all gears encased, developing under brake test 28-30 H. P.

TRANSMISSION: of the sliding gear type, having three speeds forward and reverse.

DRIVE: is through a longitudinal or propeller shaft, having universal joints at either end, through a pinion and bevel gear to the rear axle.

BODY: is of new and graceful design, comfortably seating five people. Non-removable dust proof tonneau, with double side entrance, specially easy of access.

ORDER NOW FOR EARLY DELIVERY, PRICE $2500

POPE-HARTFORD, MODEL D: a two cylinder, opposed, 18 H. P. touring car, wieldy and reliable. The car that did the 1000 miles of the Glidden Tour with only a ten cent repair. - - **Price $1600.**

Address Dep't A for catalogues.

Pope Manufacturing Company

Hartford, Conn.

BRANCHES:

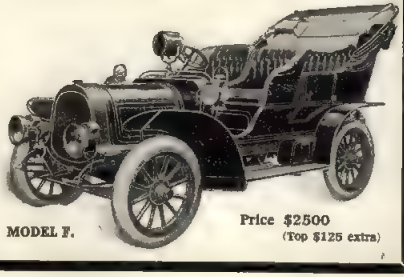
NEW YORK CITY—
1733 Broadway

BOSTON, MASS.—
223 Columbus Ave.

WASHINGTON, D. C.—
819 Fourteenth St.

SAN FRANCISCO, CAL.—
451 Mission St.

A. L. A. M.



MODEL F. Price $2500
(Top $125 extra)

POPE Toledo AUTOMOBILES

1906 1906

NEW TYPE XII, 35-40 H. P. POPE-TOLEDO

Every one in the trade the world over is now familiar with the unparalled record of the justly renowned Pope-Toledo. Months of careful study have enabled us to produce our new type XII a thoroughly reliable touring car of great power.

MOTOR: consists of four individual, twin-head cylinders, 4 cycle copper jacketed, developing under brake test 43-44 H. P., all gears encased. The very remarkable result of **securing one H. P. for every ten and eight-tenths pounds of weight** has been attained.

TRANSMISSION: sliding gear type, three speeds forward and reverse, made of the best steel obtainable. Ball bearings at all important points.

FRAME: all steel of few parts tested to a load far exceeding what is required.

BODY DESIGN: entirely new and original, double side entrance, very roomy tonneau. **Order now for early delivery.** **PRICE $3500.**

In the meantime we have for **immediate delivery** our **new type X, 20 H. P.** touring car fresh from the factory, a light, wieldy car combining efficiency, comfort, style and durability. **PRICE $2800.**

Pope Motor Car Company

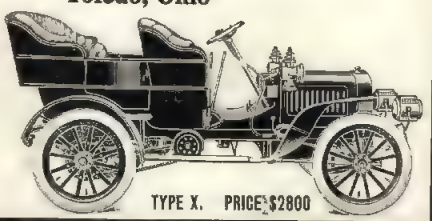
Toledo, Ohio

NEW YORK CITY—
1733 Broadway

BOSTON, MASS.—
221 Columbus Ave.

WASHINGTON, D. C.—
819 14th St.

A. L. A. M.



TYPE X. PRICE $2800

I PREFER POPE Waverley ELECTRICS

Stanhope, $1,400
Full leather Victoria or open top. A stately, stylish carriage.

Speed Road Wagon
$800 without top, $850 with top. The neatest, fastest electric runabout in the world.

Road Wagon
$850 without top, $900 with top. Beautiful piano box design. A favorite.

Coupe Top Chelsea
Price, with Coupe removable Top, $1,450. An all the-year 'round automobile

IF YOU will carefully study the electric automobile situation, your own judgment will say: "I prefer a Pope-Waverly"—no matter whether you operate other cars or not. In the gasoline field there is some latitude for investigation and comparison—in the electric field your choice is narrowed down to the Pope-Waverly, whose preeminence is absolute unique and unquestioned

The Pope-Waverly Electric is possible and practical for five people and five occasions where any other type of car is possible and practical for one.

We are speaking now, remember, of readiness and utility. We refer especially to the trip to and from the office, the early morning spin with wife or children; the shopping tour; the social call; the ride to church on Sunday morning; the spin to the park or into the country—the hundred and one occasions for which no other vehicle would answer and for which the Pope-Waverly is a pleasure and delight.

It is a significant fact that most men who can afford more than one car own a Pope-Waverley and that they actually use it oftener than they do any other car. They like the freedom from care, work and worry in operating it; they like its cleanliness and comfort—they like to be able to jump in, throw the lever, and whizz away without a second's delay.

Many men buy a Pope-Waverley "for their wives," just as many men go to the circus "because the children want to go." They generally wind up by using and enjoying the Pope-Waverley as much as either wife or children.

Anyway you'd better write for the handsomely illustrated catalogue which will give you a graphic idea of the infinite possibilities of the Pope Waverley from the standpoint of both pleasure and utility. We make fifteen distinct models; also trucks on specifications.

Agencies in All the Principal Cities.

Pope Motor Car Co.,
INDIANAPOLIS, IND

San Francisco, Nov. 9, 10, 11 and 12; Fresno, Nov. 13 and 14, and Los Angeles, Nov. 15, 16, 17 and 18. Additional points may be added taking in some of the Southern cities on the way back.

At each stop the best possible locations is secured for the car, and in almost every case an admirable position near the automobile trade district is secured. Demonstrating cars of the new Model K are shipped from the factory to arrive in each city in time to be used in connection with the traveling show, and on October 20th the Winton Company started making regular deliveries to their agents, so that orders taken en route will be filled promptly.

The Winton management have shown a great deal of originality and foresight in this well planned campaign, which cannot help but result in a very large number of sales, and will place the Winton in an enviable position for the 1906 season. With cars delivered to agents all over the country and also many delivered to purchasers, a very large percentage of the prospective buyers of new cars will have seen the Winton 1906 car before the shows and the Winton will therefore undoubtedly be the most quoted cars exhibited. The Winton Company having shown from one end of the country to the other can treat the New York and Chicago shows as local affairs and devote all of their time to local sales instead of being occupied with agency propositions.

driven water pump, and an external cone clutch of new design. A new system of cooling known as the Pope-Toledo Planetic, an entirely new principle, is incorporated in this car. The frame is of wood, reinforced with steel plates. It has a gasoline capacity of 50 gallons, sufficient for 450 miles running. The wheel base is 114½ inches and three persons can be seated comfortably on each seat.

Motor of the "Chicago" Steamer

In our September issue, page 124, we illustrated and briefly described the "Chicago" steam touring car made by Chicago Automobile Mfg. Co., of 4212 State St., Chicago, Ill., but have since received fuller details regarding the motive power.

The engine of the "Chicago" comprises 4 single acting cylinders lubricated by crank splash. Valves are of the poppet type and worked from a cam shaft by shifting, which stroke can be controlled from 1-3 to 3-4. One pair of cylinders can be cut out by hand if desired, as when running on the level, which leaves the engine running smoothly and cuts the steam consumption in half.

Running at 600 R. P. M. under 300 lbs. of steam, these two cylinders develop 20 horse power.

A sliding gear transmission is used geared 8 to 1 on the low speed. Drive is direct on the high speed through shaft and bevel gear to the rear axle.

The new Pope-Toledo 45 H. P., 3-seated Wagonette, built for use in conveying prospectors to and from mines in Nevada.

The New Pope Toledo Wagonette

For use in Nevada to convey prospectors back and forth from the mines, the Pope Motor Car Company, Toledo, Ohio, recently turned out an entirely new type of vehicle with a high powered engine and will make them on order in the future. The new Pope-Toledo is known as a three-seated wagonette and the first one was made for Charles Christman. It has a four cylinder engine suplying 45 horse power. The cylinders are 5 by 5½ inches. It has jump spark ignition, the usual Pope carburetor, a rotary, gear

Locomobile Co. of America will erect a factory garage on their property at Seaside Park, Bridgeport, Conn., to be used for the storage of cars on test previous to delivery. Their regular garage will be used for storage of cars owned locally, and for cars complete and either receiving the final test or awaiting shipment, or awaiting for the arrival of owners to receive them and run them over the road. A large amount of machinery is being installed in the Locomobile factory, including an additional 300 H. P. boiler in the powerhouse.

POPE
Waverley
ELECTRIC
AUTOMOBILES

You See Them Everywhere

The cut below shows our Pope-Waverly, Model 30. It is by far the smartest station and general utility wagon yet produced. The front seat is finely upholstered, the interior is of dark green broadcloth. Gearing noiseless, "herring bone" type, running in oil, and protected in dust-proof cases. Motor equipment consists of two 3 h. p. motors of improved design, each capable of an overload of an additional 3 h. p.

We make also

Surreys, Chelseas, Runabouts, Delivery Wagons

and Other Models

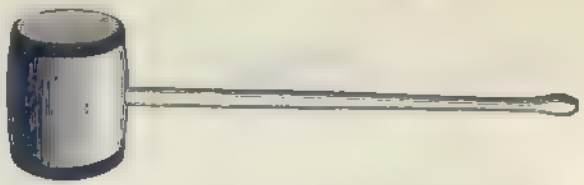
Station Wagon, Model 30, $2250

POPE MOTOR CAR CO.

INDIANAPOLIS, IND.

NEW YORK CITY	1733 Broadway
BOSTON, MASS.	223 Columbus Avenue
PROVIDENCE, R. I.	15 Snow Street
WASHINGTON, D. C.	819 14th Street
SAN FRANCISCO, CAL.	451 Mission Street

WOOD BEETLES.



For driving wedges, etc., with heavy, strong iron bands.

Mfrs. price, per doz. . . . . $39.00 Our net price, each $3.00

PAVING, POST, AND TRENCH RAMMERS.

Wood Paving Rammer.

Steel Faced Paving Rammer.

Trench Rammer.

Post Rammer.

Post Rammers.

Cast iron head, assorted length handles.

Mfrs. price, per doz., $15.00 Our net price, each, $1.00

Trench Rammers.

Length of handle 5 ft., weight 20 pounds.

Mfrs. price, per doz., $15.00 Our net price, each, $1.25

Wood Paving Rammers.

Weight 35 to 50 pounds.

Mfrs. price, each . . . . . $4.50 Our net price, each 4.00

Steel Faced Paving Rammers.

Weight 45 to 50 pounds.

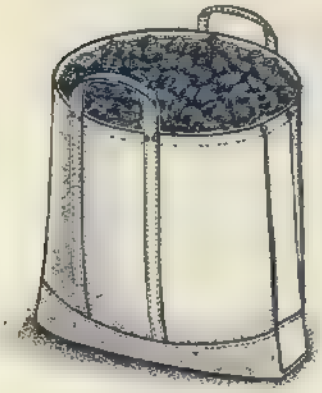
Mfrs. price, each . . . . . $9.00 Our net price, each 8.00

PAVING HAMMERS.

Boston pattern. Ground and oil finished. Solid cast steel.

Paving hammers, handled, weights 2½ to 3½ lbs., ... Mfrs. price, per doz., $30.00 Our net price, each, $2.25

COAL BAGS.



These bags are made of Heavy Duck, nicely stitched and riveted. Have double bottoms, and are so constructed that they stand alone while being filled. This feature alone makes them far superior to all other bags. Capacity, 100 pounds of coal.

Mfrs. price, per dozen . . . . . $18.00 Our net price, each $1.25

STEEL COAL CHUTES.

Wagon Chutes, tapered, 8 ft. long,	Our net price, each,	$4.00
" " " 10 "	" " " "	5.00
" " " 12 "	" " " "	6.00
Wagon Chute Extensions, straight, 3 to 11 ft.,	Our net price, per foot,	.50
Telescopic, 8 ft. long, 5 ft. slide, available length, 12 feet,	Our net price, each,	9.00
" 10 " 7 " " " 16 "	" " " "	12.00
" 21 " 9 " " " 20 "	" " " "	15.00
Window Chutes, 5 ft long, with folding legs and window stop	" " " "	4.00
Window Chutes, 6, 7, 8 and 9 ft. long, per foot extra,	Our net price,	.50

BOSTON PATTERN DIAPHRAGM PUMP.

These pumps will handle water containing sand, gravel, sewerage matter, etc., without choking or appreciable wear on the pump, and are in general use by contractors and city and town departments. They are inexpensive, durable, and very effective.

No. 2. 3 in. Side inlet . . . . . Mfrs. price, each, $40.00 Our net price, $24.00

Fittings for Diaphragm Pumps.

Special quality 3 in. Suction Hose	Our net price, per foot,	$1.50
8, 10, 12, 15 and 16 foot lengths in stock. Any length made to order.		
3 in. brass Hose Couplings, extra heavy	" " " " set,	3.00
3 " " flat Strainer	" " " each,	2.50
Pure rubber Diaphragms for 2½ in. Pumps	" " " "	1.70
" " " 3 " "	" " " "	2.00
" " " 4 " "	" " " "	2.90
Hose Spanners	" " " "	.50
" Nipples, iron pipe and hose thread	" " " "	1.50

IRON TOYS.

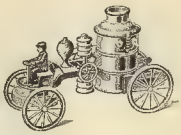
4910-18½ Pressed Steel Vestibule Train. Red cars. Length 23 in. ½ doz. in box. Per doz. **$1.85**

4911-40 Pressed Steel Train. Red, white and blue. Embossed and decorated. Length 30 in. Per doz. **$4.00**

4912-85 Pressed Steel Passenger Train. Red, white and blue. Handsomely embossed and decorated Length 40½ in Per doz. **$ 8.50**

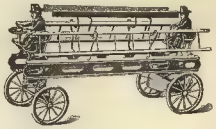
4913-120 Pressed Steel Passenger Train Red, white and blue. Handsomely embossed and decorated. Length 56 in Per doz **12.00**

4914-90 Automatic See-Saw, with two 6½ in. dressed dolls. Length 29 in. The See-Saw is operated by a spring motor and runs about 15 minutes by one winding. It makes a very attractive window display. Per doz. **$9.00**



4915-90 Automobile Fire Engine. Long distance motor, rubber tires. Length 9¾ in. Per doz **$9.00**

4917-150 Auto Aerial Ladder Truck. Equipped with long distance motor and rubber tires. The Auto Aerial Ladder is one of the most novel and attractive features ever applied to a toy. The ladder is automatically released when the front of the truck touches a wall, desk, table leg or other obstruction, and slowly unfolds and raises to an upright position. Length 18 in. Per doz. **$15.00**



4916-90 Mechanical Automobile Hook and Ladder Truck. Long distance motor. Length 13¾ in. Per doz. **$9.00**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Case Assortment of Iron Toys No. 4900-90.

Length, 5½ in.

Length, 7 in.

Length, 5½ in.

Length, 5½ in.

Length, 4½ in.

Length, 5½ in.

Length, 6 in.

Length, 6½ in.

Length, 6 in.

Length, 6 in.

Length, 9½ in.

Length, 8½ in.

This case contains a complete assortment of first quality Iron Toys to retail at 10c Case contains 12 styles of 1 doz. each as illustrated above
This case will make an excellent leader for a 10c. article, as every piece is perfect in itself.

Total number of pieces complete, 144. **Average cost each, 6¼c.** **Price per case, $9.00**

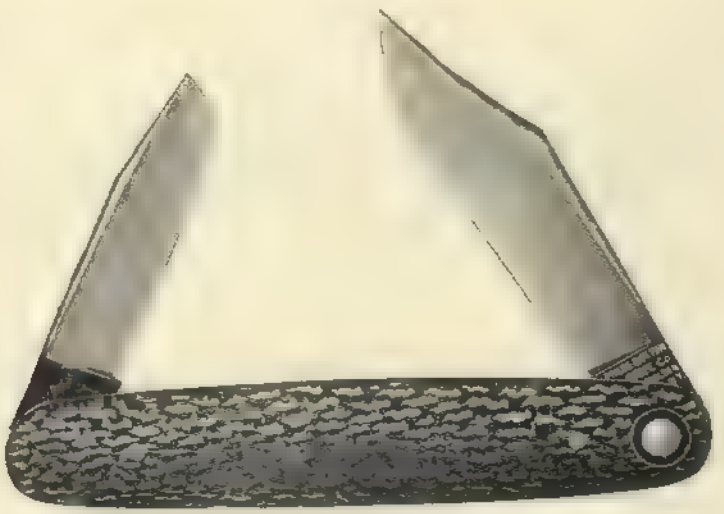
WE DO NOT BREAK CASES.

Terms on above. 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

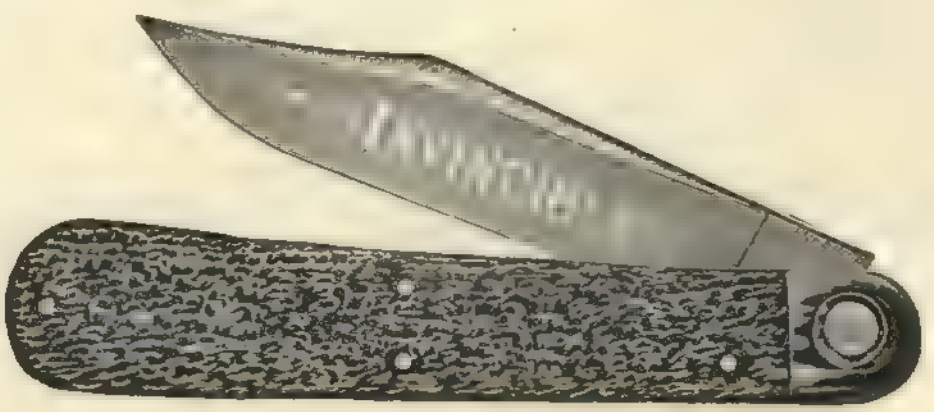
Press Button Pocket Knives

No. 207 — 3¾ inch, **Ebony** Handle, Two Blades, Crocus Polished, Brass Lined, . . . Per Doz $12 00

No. 100—3⅝ inch, **Stag** Handle, Two Blades, Crocus Polished, Brass Lined. Per Doz. $12 00



No. 115—3⅝ inch, **Stag** Handle, Two Blades, Crocus Polished, Brass Lined . . Per Doz $15 00



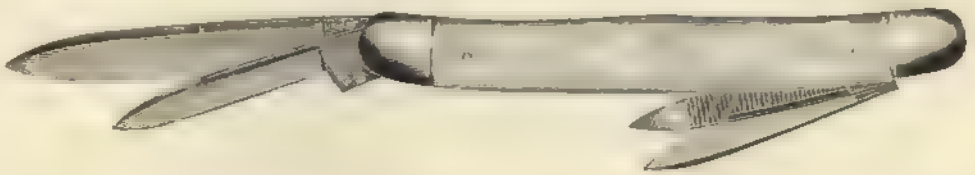
No. 1000—5 inch, **Stag** Handle, One Blade, Half Crocus Polished, Iron Lined, ... Per Doz $14 00

All Above One-half Dozen in a Box.

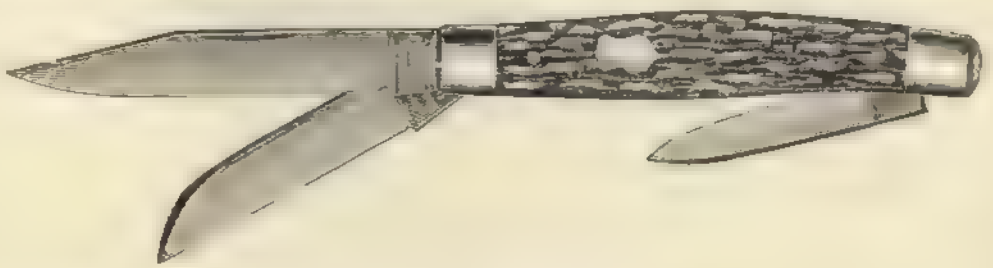
Pocket Knives

No. **4684P**—**Pearl** Handle, Brass Lined, Polished Blades, ... Per Doz. $16.00

No. **5654P**—**Pearl** Handle, Brass Lined, Polished Blades, ... Per Doz. $16.00



No. **5611P**—**Pearl** Handle, Brass Lined, Polished Blades, ... Per Doz. $16.00

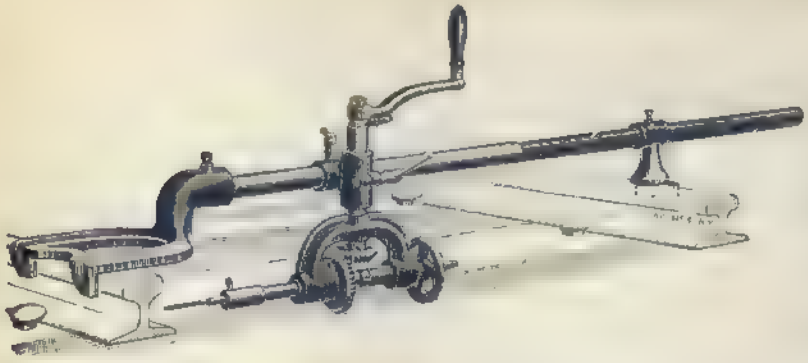


No **5506**—**Stag** Handle, Brass Lined, Polished Blades, . . . Per Doz. $10.00

No. **4571**—**Stag** Handle, Brass Lined, Polished Blades, ... Per Doz $12.00

All Above One-half Dozen in a Box.

RAILROAD TRACK DRILL.



These Track Drills are indispensable to railroads and contractors because of their speed in drilling and the facility with which the drill is removed from the rail. They may be used upon any form of T and girder rail, with the rail placed in position or not, as desired. These drills are light, strong and durable, and all materials used in their construction are of the best quality.

Mfrs. price, each $30.00
Our net price, each, ... 25.00

STRAIGHT SHANK TWIST DRILLS.

With Shanks ½ inch diameter, 2½ inches long. With shanks fitting the above track drills.

Diameter, inches.	⅜	7/16	½	9/16	⅝	11/16	¾	⅞	1	1⅛	1¼
Length, inches,	6¾	7¼	7¾	8¼	8¾	9¼	9¾	10¼	11	11¾	12½
Our net price, each,	$0.80	.90	1.00	1.20	1.40	1.60	1.85	2.45	3.00	3.80	4.50

WOOD TRACK GAUGE.

Well made, light and durable.

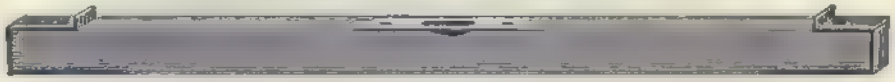
Mfrs. price, each, ... $1.50 Our net price, ... $1.35

HUNTINGTON TRACK GAUGE.

Light, strong and accurate. The stem of the gauge is made of iron pipe, to which are attached malleable iron heads by taper thread, securely fastened with riveted pins.

Mfrs. price, each, ... $4.00 Our net price, each, ... $3.00

RAILROAD OR STREET LEVEL.



5 to 6 feet long.

This is the most carefully made level upon the market. It is accurately adjusted, and may be furnished in any desired length.

Mfrs. price, per foot, ... $1.50 Our net price, per foot, ... $1.00

RAILROAD TRACK TONGS.

Mfrs. price, per pair, ... $3.50 Our net price, per pair, ... $3.00

BELL BOTTOM JACK SCREWS.

Our Jack Screws have cast iron barrels, with steel screws and steel collars.
For workmanship and durability they cannot be excelled.
All screws are warranted to carry the weight specified.

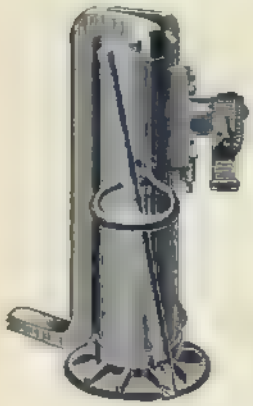
Diameter of Screw	Length of Barrel	Height over all	Lifting Capacity	Approximate Weight	Mfrs. Price	Our Net Price
1¾	8 in	11½ in.	16 tons	24 lbs.	$5.00	$3.00
1¾	10 "	13⅝ "	16 "	26 "	5.75	3.50
2	10 "	14 "	20 "	38 "	6.75	4.00
2	12 "	16 "	20 "	39 "	7.50	4.50
2¼	12 "	16 "	24 "	41 "	9.00	5.50
2½	14 "	18½ "	28 "	60 "	12.00	7.50
2½	16 "	20½ "	28 "	70 "	13.25	8.00

Levers will be sent only when ordered and will be charged for extra.

10-TON "SURE DROP" TRACK JACK No. 5.

The body of the Jack is malleable iron, with extra strong base. Lifting bar is made from best quality of forged steel, and the teeth are accurately milled. Pawls of steel. No springs to wear or break, and no loose pins. Our lifting device is the easiest, quickest working, and most perfect ever applied to any Track Jack. The tripping device is perfect, and the only one with a positive trip under all conditions.

No. 5 Sure Drop Jack, height 24 in., rise of bar 15 in., weight 60 lbs. . . . . Mfrs. price, each, $14.25 Our net price, on application.



15-TON CONE BEARING JACK.

These Jacks are superior to all others.

Cost less for maintenance, are always safe and reliable, even in the hands of careless and unskilled workmen, as the screw holds the load without blocking, and cannot drop or run down. This is a very important feature in a jack and should not be overlooked.

They can be left standing in tool car or shop, or carried on locomotives for months at a time without any attention whatever, and be found ready for service when needed, as there is no alcohol, packing or valves to keep in order.

Style	Height	Rise	Base	Weight	Capacity	Mfrs. Price	Our Net Price
G*	22 in.	12 in.	10 in.	80 lbs.	15 tons	$25.00	On Application.
G**	22 "	12 "	10 "	85 "	15 "	28.00	

*Hook extra, $5.00. **Foot cast on shell.

MEASURING TAPES.

Patent Metallic Warp Tapes.

Five-eighth inch wide.

Lengths	25 feet	33 feet	40 feet	50 feet	66 feet	75 feet	100 feet
Mfrs. price, per doz.	$21.00	$24.00	$27.00	$30.00	$36.00	$42.00	$48.00
Our net price, each	1.75	2.00	2.25	2.50	3.00	3.50	4.00

Star Steel Tapes.

Three-eighth inch wide, nickel-plated cases.

Lengths	50 feet	75 feet	100 feet
Mfrs. price, each	$4.50	$6.00	$8.00
Our net price, each	4.00	5.25	7.00

Lawn Sprinklers.

Moss Brae.

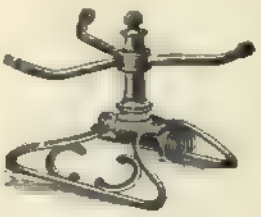
Steel Arms and Pedestal, Babbeted Bearings, Brass Adjusting Nuts.

		Per Dozen
Code Apulgardo. **No. 1**—For ¾ In. Hose,	. . . .	$15 00
Weight, 41 lbs. Per Dozen.		
Code Apulgar **No. 01**—For 1 In. Hose,	. . . .	20.00
Weight, 42 lbs. Per Dozen.		

Sunshine.

Ball Bearing, Brass Arms, Stee Pedestal

		Per Dozen
Code Apunchar **No. 20**—For ¾ In. Hose,	. . . .	$15 00
Weight, 36 lbs. Per Dozen.		



Preston's.

Iron Base, Japanned, Brass Head and Arms.

		Per Dozen
Code Apulgarlo **No. 5**—For ¾ In. Hose,	. . . .	$15.00
Weight, 24 lbs. Per Dozen.		

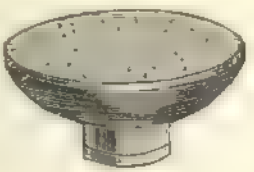
Busy.

		Per Dozen
Code Apuntels. **No. 6**—For ¾ In. Hose,	. . . .	$9 00
Weight, 20 lbs. Per Dozen.		

Nozzle Sprinklers.

Amazon.

		Per Dozen
Code Apulgar **No. 20**—For ¾ In. Hose,	. . . .	$4.00
Weight, 6 lbs. Per Dozen.		



Inches,	. . .	2	2½	3
Code	. . .	Arabitae.	Arabiton.	Arabizar
Weight Per Dozen, lbs.,		1¼	1½	3
Per Dozen,	. .	$4.50	6.00	9.00

Lawn Sprinklers.

Two Arm, O'Shea.

	Per Dozen
Code Apylque. **No. 2**—For ¾ In. Hose,	$18.00
Weight, 12 lbs. Per Dozen.	
Code Apyrene. **No. 02**—For 1 In. Hose,	21 00
Weight, 15 lbs. Per Dozen.	

Four Arm, O'Shea.

	Per Dozen
Code Apyrous. **No. 4**—For ¾ In. Hose,	$21.00
Weight, 19 lbs. Per Dozen.	
Code Aqunbare. **No. 04**—For 1 In. Hose,	24 00
Weight, 25 lbs. Per Dozen.	

Tripods for O'Shea Sprinklers.

	Per Dozen
Code Aquario. **No. 6**—O'Shea Tripods, for ¾ In. Hose,	$22.00
Weight, 82 lbs. Per Dozen.	
Code Aquatical. **No. 7**—O'Shea Tripods, for 1 In. Hose,	24.00
Weight, 99 lbs. Per Dozen.	

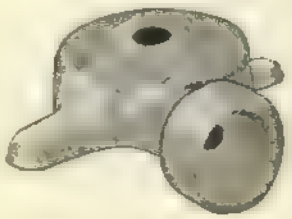
Evanston.

Japanned, No Revolving Parts.

	Per Dozen
Code Aquelty. **No. 10**—For ¾ In. Hose,	$6 00
Weight, 21½ lbs. Per Dozen.	

C. B. G.

	Per Dozen
Code Aquejar. **No. 15**—For ¾ In. Hose,	$3 00
Weight, 13 lbs. Per Dozen.	



Wilgus.

Made of White Metal.

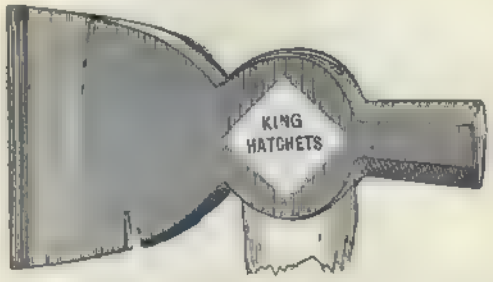
	Per Dozen
Code Aquenses. **No. 1**—For ¾ In. Hose,	$4.00
Weight, 8½ lbs. Per Dozen.	
Code Aqueronte **No. 3**—For 1 In. Hose,	8.00
Weight, 12 lbs. Per Dozen.	

STRAPPED EYE BUSH HOOKS.

Best quality cast steel. Bronzed. Cutting edge ground and polished.

Medium Bush Hooks	Mfrs. price, per doz.,	$15.00	Our net price, each, $1.00
Extra Heavy Bush Hooks	" "	17.00	" " 1.25

HATCHETS.



Bronzed or painted. Bits polished. Good quality.

Shingling.

No. 1,	Mfrs. price, per doz.,	$8.00	Our net price, each,	$0.40	
" 2,	" "	8.50	" "	.45	
" 3,	" "	9.00	" "	.60	

Axe Pattern.

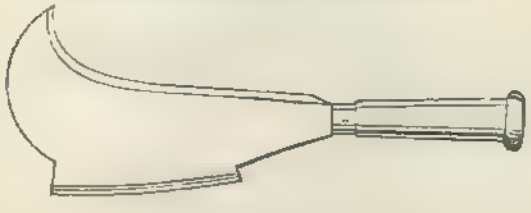
No. 1,	Mfrs. price, per doz.,	$10.00	Our net price, each,	$0.45	
" 2,	" "	11.00	" "	.60	
" 3,	" "	12.00	" "	.70	

TURFING AXES.

For cutting turf on cranberry bogs. Hand forged. Best quality.

Turfing axes	Mfrs price, per doz.,	$24.00	Our net price, each,	$1.75
" " handled	" "	27.00	" "	2.00

NOTTINGHAM BILLS.



Imported best quality steel. Useful for trimming and cutting brush.

Mfrs. price, per doz. . . . . $18.00 Our net price, each $1.25

BRECK'S VICTOR AXES.

(Ebonite Finish.)

Victor Boys' Axe.

Same quality as other Victors. Extra grade of handles.

Victor Boys' Axes, handled . . . . . Our price, per doz., $9.00 Our net price, each, $0.75

BRECK'S CENTENNIAL SILVER STEEL AXES.

Bronzed, Polished Bits.

In producing Breck's Victor Axes, which are unconditionally warranted, a much more rigid inspection is maintained than is usual in manufacturing the ordinary first quality warranted axes. In consequence a great many are thrown out on account of some very slight imperfection that in nowise affects the cutting qualities of the Axe.

Our Centennial Axes are made up from these slightly imperfect ones, and are in every respect equal, if not superior to any unwarranted axe made by other manufacturers.

We can furnish each season a limited quantity only of the same patterns and weights as in our Victor Axes

Breck's Centennial Axes, excepting Double Bitts . . . . . Our net price, per doz., $12 00 Our net price, each, $1.00
" " " Double Bitt Patterns . . . . . " " 15.00 " " 1.25

BRECK'S CENTENNIAL SILVER STEEL HANDLED AXES.

Breck Centennial Axe, handled excepting Double Bitts . . . . . Our net price, per doz., $15.00 Our net price, each, $1 25
" " " " Double Bitt Patterns . . . . . " " 18.00 " " 1.50

Only good quality handles used in Centennial Axes.

READING STANDARD

ARE YOU A

READING STANDARD

AGENT FOR 1906?

If not, you should write for your territory at once. You will find it worth while, because as a reputation and money maker, the **READING STANDARD** line of bicycles has no equal. They are the kind that are a pleasure to sell, because there are no after complaints from purchasers.

We offer the following models:

READING STANDARD Pace-Follower Model	List	$60 00
READING STANDARD Racer Model	List	50 00
READING STANDARD Road Racer Model	List	40 00
READING STANDARD Ladies' Light Roadster Model	List	40 00
ROYAL READING ROADSTER, Men's Model	List	30 00
ROYAL READING ROADSTER, Ladies' Model	List	30 00

Write us; we will tell you something interesting

The Thoroughbred

for 1906 will maintain the reputation which it has achieved in the past, of being the speediest, sturdiest and most satisfactory motor cycle on the market. "If you really want to ride a 'winner,' you will get a **Thoroughbred.**"

We will be pleased to tell you all about it, on request.

Reading Standard Cycle Mfg. Co.

READING, PA., U. S. A.

Leavitt & Bill, San Francisco, Distributers for the State of California.
Scott Supply & Tool Co., Denver, Col., Distributers for the Rocky Mountain States.

READING STANDARD

READING STANDARD

READING STANDARD

If you want your **1906 SEASON** to be a successful one, arrange now for the

Reading Standard

AGENCY

READING STANDARDS are the most satisfactory bicycles on the market. They are well constructed in every detail, and are a pleasure to sell, because there are no after complaints. Their price enables you to make a good margin of profit.

We offer the following models:

READING STANDARD Pace-Follower Model - -	List $60 00
READING STANDARD Racer Model - - - -	List 50 00
READING STANDARD Road Racer Model - - -	List 40 00
READING STANDARD Ladies' Light Roadster Model -	List 40 00
ROYAL READING ROADSTER, Men's Model - -	List 30 00
ROYAL READING ROADSTER, Ladies' Model - -	List 30 00

"If you really want to ride a winner, get a THOROUGHBRED." Some motor cycles are well known for the claims made by their makers.

The Thoroughbred

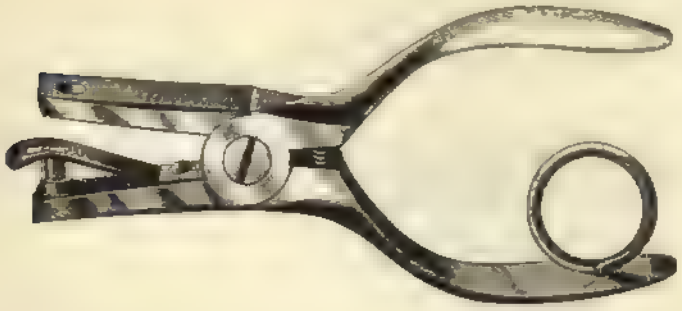
is famous for its achievements. There is no question about this, for it has a long list of victories on track and road, which proclaim it the speediest, sturdiest and most satisfactory motor-cycle. Write us for proofs of Thoroughbred superiority.

Reading Standard Cycle Manufacturing Co.

Reading, Pennsylvania, U. S. A.

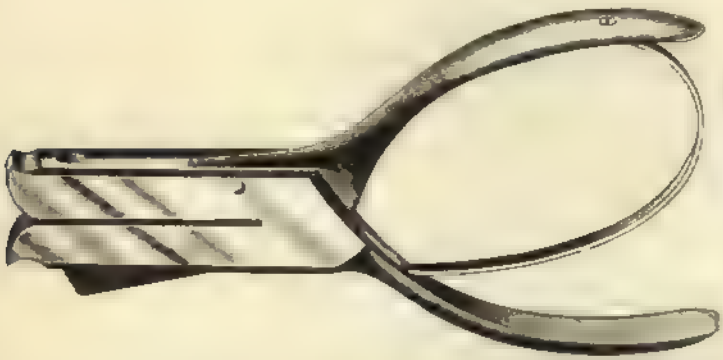
LEAVITT & BILL, San Francisco, distributors for the State of California

Ticket Punches



No. — Per Doz.
2—Full Nickel Plated, Assorted Fancy Designs, Reach 1 in. $13.50

No. — Per Doz
6—Full Nickel Plated, Reach ⅞ in., Fancy Designs Assorted $8 50



No. — Per Doz.
14—Full Nickel Plated, Assorted Designs. 1½ in. Slot; a Heavy Punch for Surface Roads, Etc. $18 00

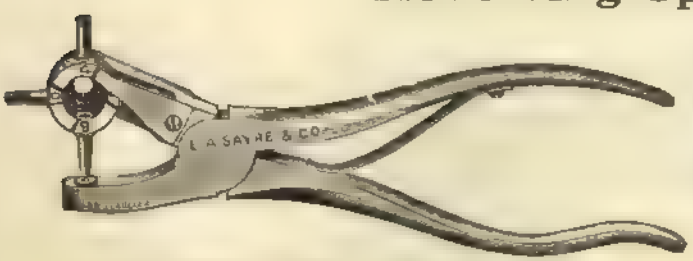
No. — Per Doz.
34 Full Nickel Plated Assorted Designs; for Street Car Transfers and other Tickets. $24 00

Spring Punches

No — Per Doz
10—Cast Steel, Length 7 in. Tubes to drive, Assorted, Nos. 6. 7 and 8. $6 00
Extra Tubes 1.50

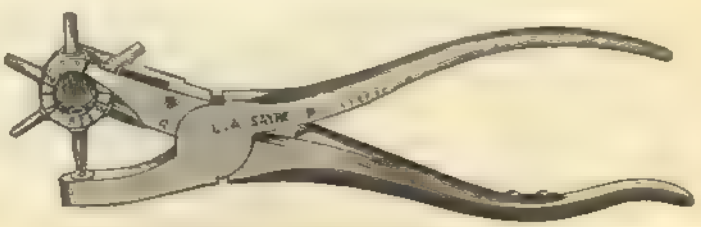
One-Half Doz. in a Box

Revolving Spring Punches



Cast Steel, Polished, Tubes to drive

No — Per Doz.
40 -Four Tubes $9.00
Extra Tubes 1.50



Cast Steel, Polished, Tubes to drive

No — Per Doz
60—Six Tubes.... $12 00
Extra Tubes..... 1.50

One-Half Doz. in a Box

Cutting Nippers

Carews
Forged from Crucible Steel, Jaws are Hardened and Tempered

Length, Inches	6	8	10	12	14
Each	$3.50	4.00	4.50	5.25	6.00
Extra Jaws—Per Pair	1.00	1.10	1.20	1.30	1.40

Nettleton
Forged Steel, Reversible Jaws

No.	108	110	112
Length, Inches	8	10	12
Each	$2.50	3 00	3 50
Extra Jaws Per Pair	.90	1 00	1 15

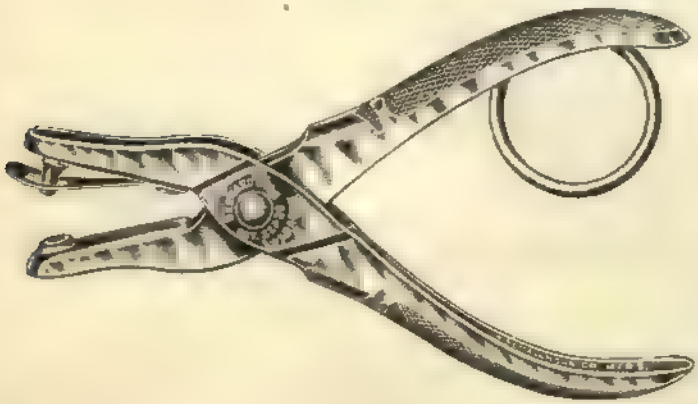
Carpenters' Pincers

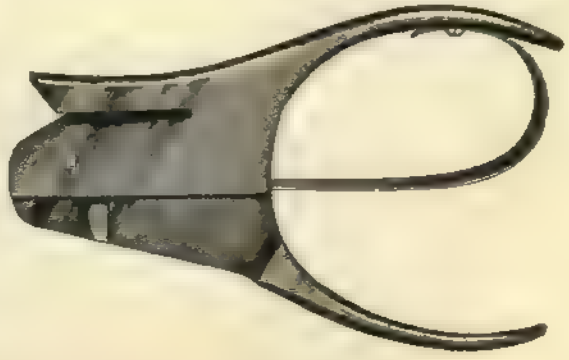
No. 43—Forged Steel, Polished Jaws

Length, Inches	6	8	10
Per Doz	$3.00	4.50	6.00

One-Half Doz. in a Box

Ticket Punches





No.	Per Doz.
250—Full Nickel Plated, Ass'd Designs, Length 5 in., Reach 1 in	$4.50
1—Conductors, Full Nickel Plated, Ass'd, Fancy Designs, Length 4 in., Slot 1 in	$24.00

Laib Co.
1097
Louisville Ky

CLASS E, TWO WAY DUMP STEAM SHOVEL CAR.

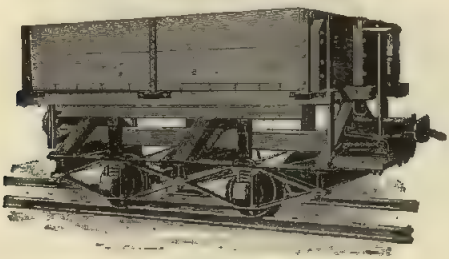


FIG. 3120.

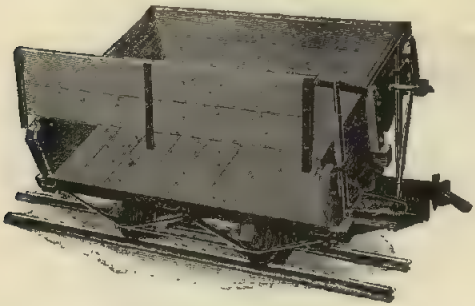


FIG. 3121.

The above illustrations show an Improved Class E, Two-Way Dump Car, with Diamond Frame Steel Running Gear and Springs over Axles.

Inside Dimensions of Bed: Length, 96 inches; width, 72 inches; depth, 20 inches. Total length from end to end of coupler, 141 inches. Total width over all, 78 inches.

Chilled Plate Wheels: 16 inches in diameter; weight, 130 pounds each.

Axles: 2¾ inch Round Steel. Bronze Journal Bearings, 2½ x 7 inches.

Height: From top of rail to center of draw-bar, 27 inches; from top of rail to floor, 40 inches; from top of rail to top of bed, 60 inches.

Weight of Car: Approximately, 3500 pounds. Eight to a car load.

Furnished with brakes when so ordered.

Laib Co.
1096
Louisville Ky.

CONTRACTORS' DUMP CARTS.

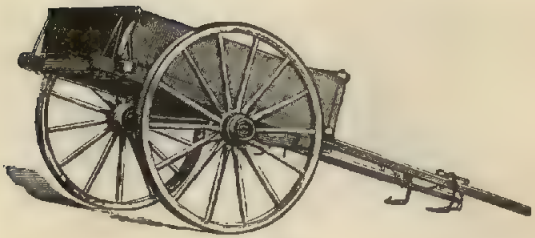


FIG. 3118.

HEAVY CART WITH WING BOARD.

FIG. 3119.

Dimensions: Heavy Carts; Bed, inside, 66 inches long, 44 inches wide, 14 inches deep. Light Carts; same length and width, 12 inches deep; Wheels, 54 inches in diameter; Hubs, 9 x 12 inches; Spokes, fourteen 2½ inch; Tires, 3 x ½ inches; Steel Axle, 2½ inches square; Spindle, 2¼ x 10 inches. Wood Axle Bed, 3½ x 8 inches; Shafts, 2¾ x 3½ inches; Cross Bar, 2½ x 8 inches. Heavy Cart: Capacity 24 cubic feet; Light Cart: Capacity, 21 cubic feet; Weight: Light Carts, 650 pounds; Heavy Carts 800 pounds; Heavy Carts with Wing Boards, 890 pounds; Wheels Track, 5 feet 2 inches.

Price, Light Carts	each	45.00
Price, Heavy Carts	each	50.00
Price, Heavy Carts with Wing Boards	each	63.00

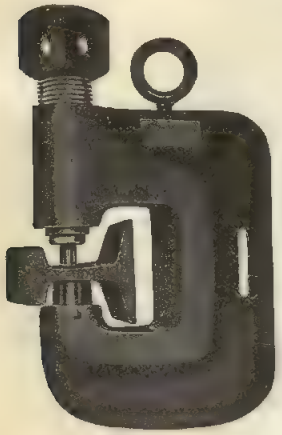


Fig. 2063.

RAIL AND STRUCTURAL IRON PUNCHES.

Special punch for punching street rails and structural iron.

Special designs made for special work.

Prices quoted on application.

PNEUMATIC COATING MACHINE.

The No. 6 machine is designed to meet the demand of those having large surfaces to whitewash or paint.

The Compressor Tank or Receptacle is made of steel boiler tube, 6 inches in diameter by 24 inches in height, with malleable iron heads, held together by means of rods.

The plunger is constructed so that the valves, which are of special material made exclusively for us, are never immersed in the liquid, and consequently are not affected by the action of chemicals in whitewash or cold water paint. The check-valves are made from the same composition as the plunger-valves.

We do not use brass or other metals in our plungers or check-valves, as the grit in whitewash or cold water paint wears the brass out rapidly—does not permit of a perfect seating of the checks, and have to be replaced at heavy cost.

PRICE No. 6 MACHINE.

Each No. 6 Coating Machine is equipped with 5 feet of hard rubber suction hose and strainer, 25 feet of ¼-inch pneumatic discharge hose 2 nozzles and 8-foot bamboo pole for coating walls and ceilings without erecting scaffolds.

Price complete, equipped as above, ready for action.. .... $35.00
Price of Pneumatic Hose, per foot..... . . .25

PRICE No. 10 MACHINE.

Each machine is equipped with 5 feet of section hose and strainer, 10 feet of pneumatic discharge hose, 8-foot bamboo rod, nozzles, with complete directions for operating, by following which a novice can handle the machine very easily and satisfactorily.

Price complete, equipped as above, ready for operation.....$24.00
Price of Pneumatic Hose per ft... .25

PRICE No. 15 MACHINE.

Each machine is equipped with 5 feet of section-hose and strainer, 10 feet of pneumatic discharge hose, 4-foot rod, nozzles, with complete directions for operating, by following which a novice can handle the machine very easily and satisfactorily

Complete $18.00
Pneumatic Hose, per foot..... .25

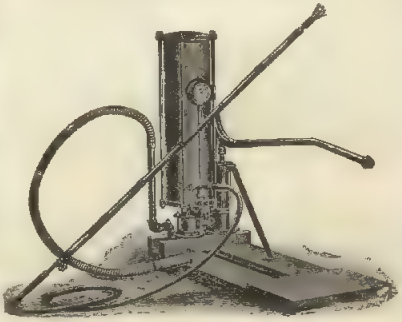


Fig. 2063.

HYDRAULIC JACKS CONTINUED.

"OUTSIDE PUMP" VERTICAL HYDRAULIC JACK.

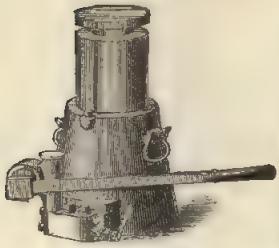


FIG. 2059.

This style is used for Dry Docks, Wrecking, Pressing Flanges on Patent Wagon Wheel Hubs, Hauling Oil Well Pipes, etc.

Jacks to lift	Total height inches	Weight lbs.	Price	Extra length per in.
60 tons 9 in.	17½	250	$300 00	
60 " 12 "	20½	318	324 00	$5 00
60 " 18 "	29½	400	360 00	
100 " 9 "	17½	360	375 00	
100 " 12 "	20½	445	390 00	6 00
100 " 18 "	30½	545	440 00	
125 " 12 "	20½	600	360 00	7 50
150 " 12 "	20½	800	425 00	10 00
200 " 9 "	19	1000	450 00	
200 " 12 "	22	1200	500 00	15 00
200 " 18 "	28	1500	575 00	

"OUTSIDE PUMP" HORIZONTAL HYDRAULIC JACKS.

These jacks are used in pushing crank pins in and out, pushing bridges and similar heavy work. The lever is worked perpendicularly, instead of horizontally, as in other makes thus adding fifty per cent to their power and ease of operation.

Jack to push	Price	Extra length per in.
60 tons 12 in.	$220 00	$6 00
100 " 12 "	300 00	6 00
125 " 12 "	350 00	7 50
150 " 12 "	425 00	10 00

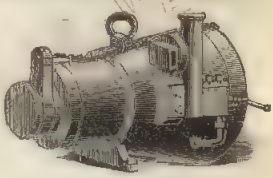


FIG. 2060

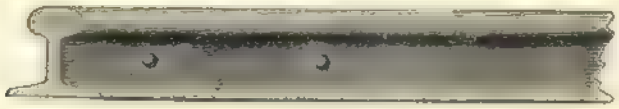
"OUTSIDE PUMP" REVERSED HYDRAULIC JACKS.

In press frames for use on work which was not convenient to put upon movable platens.

FIG. 2061

Power to lift	Height	Diam. of base	Weight	Price
60 tons 12 in.	22	12	300	$225 00
100 " 12 "	22	13	400	300 00
125 " 12 "	22	14	475	360 00
150 " 12 "	23	15	600	425 00
200 " 12 "	24	18¼	900	500 00
200 " 18 "	30	18¼	1000	575 00

Tee Rail.



Weight Per Yard, lbs.,	8	12	16	20	30	35
Code	Cigonuela.	Ciguiera.	Cilantros.	Cilbos.	Cilmos.	Cilpes.
Length, Feet,	20	20	20	20	30	30
Per Pound,	$..	..	..	..	..	.

Lengths as Listed are Standard. Special Lengths furnished to Order only.

Tons of Rail Required to One Mile of Track.

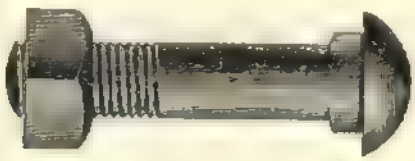
Weight Per Yard, lbs.,	8	12	16	20	25	28	30	35	40	45	56	60
Tons (2240 lbs.) Per Mile.	12 57	18 86	25.14	31.14	39 29	44 00	47.14	55 00	62 86	70 71	88 00	94 30

Fish Plates.

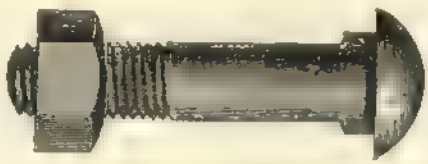
Consisting of 2 Plates and 4 Bolts.

For Rails, lbs.,	8	12	16	20	30	35
Code	Cilforo.	Cilindrava.	Cilindrica.	Cilindrill.	Cilindro	Cilingrada.
Per Pair,	$....	....	....	....	....	....

Track Bolts.



Square Nut.



Hexagon Nut.

Size Inches.	Code	Weight lbs. Per 100	Per 100.
⅝ x 1½	Cilbolis	20	$ 3 80
⅝ x 2	Cilhonem	21	3 84
⅝ x 2½	Cilforum.	24	4.12
⅝ x 3	Cilfose.	27	4 64

Size Inches.	Code	Weight lbs. Per 100.	Per 100.
⅝ x 2	[illegible]	30	$ 5 72
⅝ x 2½	[illegible]	40	[illegible]
⅝ x 3	Cilsolaris	46	[illegible]
¾ x 3	Cimarrones	48	9 [illegible]
¾ x 3½	[illegible]	74	[illegible] 12
¾ x 4	Cimarre	8	15 67
⅞ x 4	Cimarrona.	110	15 40
⅞ x 4½	Cimarrones.	120	16 17

60 Pounds in a Keg.

Railroad Spikes.

Size Inches	Code.	Number in 100 lbs.	Pounds Required to 1000 Feet of Track.	Approximate Size Rail lbs	Per 100 lbs
⅝ x 2½	Cimbalaria.	1100	200	8	Advance, $0.45
¾ x 3½	Cimbalillo.	590	340	8 to 16	Advance, .20
⅞ x 4	Cimbellano.	390	500	20 to 25	Advance, .05
½ x 4½	Cimballare	290	700	35 to 45	Base.
⅝ x 5	Cimbellava.	200	1000	50 to 60	Base.
⅝ x 5½	Cimbello.	180	1110	60 to 75	Base.

NO. 0 VELOCIPEDE CAR.

Car Seated for Two Persons.

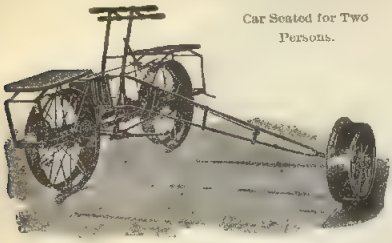


FIG. 2085.

Constructed from steel and malleable iron; frame trussed to give maximum strength and minimum weight, axles revolve under anti-friction rollers, geared 3½ to 1, or higher, if desired. Outer third wheel arm can be swung into position parallel with drive wheels, so to occupy small space in shipping. Weight, seated for one person, 135 lbs. Weight, seated for two persons, 170 lbs.

No. 7 VELOCIPEDE.

The best and lightest Velocipede on sharp curves and steep grades. Extensively used by switch lamp tenders, weight, 195 pounds; built any gauge.

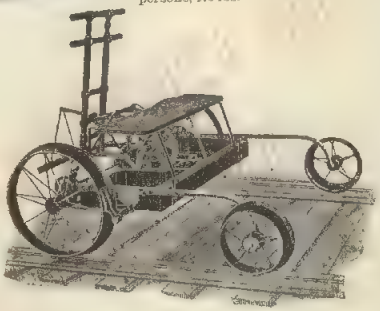


FIG. 2086

KALAMAZOO ADJUSTABLE TRACK LEVEL.

(PATENTED.)

SIMPLE, ACCURATE, DURABLE.

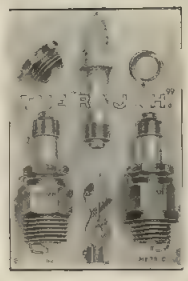
FIG. 3087.

Malleable iron elevation beam, channel shape, guarantees proper position of level and bearing plate at all times. The plain scale of figures insures accurate adjustment to any desired elevation up to six inches. A 1¼ x 6-inch bearing-plate, near lower end of elevation beam, supports level and prevents it falling sidewise. The elevation beam projects 1½ inches below bottom of bearing-plate, which it guides to position and prevents slipping outward from top of rail. Spirit vial has adjustable dial or guard plate, simple and effective, whereby inaccuracies may be easily corrected. Metal wear-plates are provided where level contacts with rails. Board of best white pine, superior for the purpose to hardwood.

Used by leading merchants for the past two years with absolute success . . . . . .

Builders exclusively of
Commercial Power Wagons
Solid Tires

RAPID MOTOR VEHICLE CO.,
Factories: Detroit and Pontiac
Address all communications to
Pontiac Factory



"RAJAH" SPARK PLUGS

IGNITION ABSOLUTELY SURE

Price $2.00 Prepaid

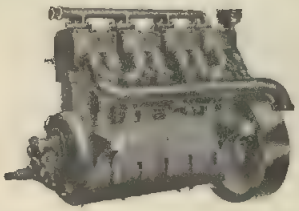
Simple in construction, easy to clean. They give none of the troubles so common to others—are more lasting—and never fail to satisfy.

SOMETHING NEW
"RAJAH MARINE CAP" For Spark Plug

Rajah Auto-Supply Company
140 Washington Street, New York City

The 1906 Rutenber

4-Cylinder, 4-Cycle Vertical Motor

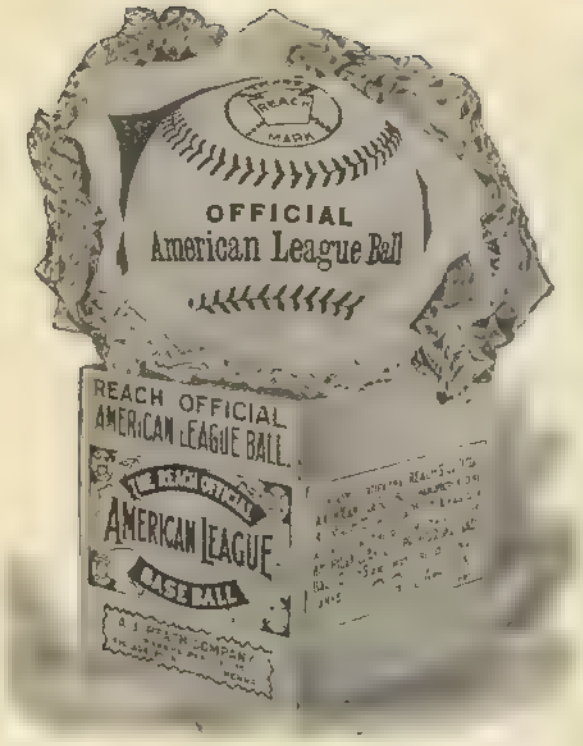


The Rutenber Automobile Motor is unequalled for power, durability, efficiency and smoothness of running. Only the best quality of material is used in its construction, and it is made by skilled men in our own factory. An investigation of our motor will convince you that it has many points of superiority. We make different sizes of motors for Automobile, Marine and Stationary use. Our mufflers really do muffle and our timer is the best that can be made. We make all of our own gray iron, brass and aluminum castings, and are also in a position to make these for the trade.

If you are interested in any of these, we will be pleased to have you write us for descriptive matter.

THE WESTERN MOTOR CO., Logansport, Indiana

Base Balls



This Ball is of the highest quality and is absolutely Guaranteed. Each Ball is wrapped in Tin Foil, packed in a separate box and sealed according to League regulations.

No		Each
0—**Reach** American League,	.	$1 25

It conforms exactly with all the requirements and specifications of the National and American Leagues. All materials used in its construction are of the very finest quality. Each ball is wrapped in tissue paper and tin foil, packed in a separate box, and sealed according to league regulations. Warranted to last a full game of nine innings without ripping, or losing its shape or elasticity

No		Each
97 **Goldsmith** Official League,	. . .	$1.25

No.		Each
125—American Association, Pure Para Rubber Center, Pure Worsted Yarn Horsehide Cover, Double Hand Stitched, Fully Guaranteed,		$1 25

No.		Each
3 Western Association, Rubber Ball Center, Fine Quality Woolen Yarn, Horsehide Cover,	.	$1 00

Each Wrapped in Tin Foil, One in a Sealed Box.

No.		Each
6 —High School Club Superior Woolen Yarn 1 oz. Rubber Ball Center, Horsehide Cover,	.	.$0.75

One in a Sealed Box, Wrapped in Tin Foil.

No.		Each
65 —Nox-All, Rubber Ball Center, Yarn Wrapped, Horsehide Cover,		$0 50

One in a Box.

Base Balls

No.		Each
1	—Professional Finished with Extra Quality Yarn, Horsehide Cover, .	$0.50

One in a Box.

No.		Each
80	League Junior Finished with good Yarn, Horsehide Cover, .	$0.25

One in a Box.

No.		Each
5	Amateur Full Regulation Size and Weight, Double Stitched, Horsehide Cover, .	$0.25

One in a Box.

No.		Each
11	Red Stocking, Regulation Size, Selected Sheepskin Cover, .	$0.20

One in a Box.

No.		Each
9	Junior League Regulation Size and Weight; Well Made, Good Grade Sheepskin Cover, . .	$0.15

One Doz. in a Box.

No.		Each
17	Champion, Regulation Size, Double Stitched, Waterproof Cara Cover, . .	0.10

One Doz. in a Box.

No.		Each
35	—Boys' Practice, Under Regulation Size, Double Stitched, Waterproof Cara Cover, . .	$0.10

No.		Each
30	Rocket, Two Piece Waterproof Cover, Well Made and Carefully Sewed, . .	$0.05

One Doz. in a Box.

No.		Each
32	Winner, Selected Waterproof Cara Cover, Well Made and Nicely Finished, .	$0.05

PLAY BALLS

These balls can be batted and fielded the same as a regular ball but being soft, will not injure the hands of those unaccustomed to the game. Is made nine inches in circumferance, of good quality material.

No.		Each
12	—Play Ball, Sheepskin Cover, . . .	$0.25

PICNIC BALLS

A soft ball with Sheepskin Cover. Size, 12 inches. An ideal ball for boys, girls and women, also very popular for picnics.

No.		Each
26	—Picnic Ball, . . .	$0.25

REGAL ENGINE—THROTTLING TYPE.

FIG. 2293.

The above engine is built from entirely new patterns, the design generally conforming to the Vim Engine and includes all the desirable features of that type viz. balanced slide valve, consisting of a flat casting working between seat and pressure plate (this plate is maintained at proper resistance by strips of iron, slightly thicker than the valve, and the wear of the valve is corrected by scraping these strips). Connecting rods, forged steel connecting-rod fitted with cast iron crank-pin boxes babbited with genuine babbitt. The bearings are large wearing surfaces very liberal and construction first class throughout. When ordered complete, fixtures include one pulley, outboard bearing, governor, governor belt, throttle valve, oil cups, including centrifugal oiler for crank pin, sight feed lubricator, and cylinder drip cocks operated by single lever. Foundation bolts and washers are supplied to order as extras at an additional price. All foundation bolts for these engines, unless otherwise ordered are four feet eight inches to six feet in length (depending on size of engine) suitable for brick, stone or cement foundation. Anything ordered, not included in the above list of fixtures, will be charged as an extra.

No. of Size.	Cylinder		H. P. as Usually Rated.	Revolutions per min.	Pulley.		Dia. Steam Pipe.	Diam. Ex. Pipe.	Length Over All Including Pulley		Width Over All Including Pulley.		Weight Complete.
	Diam. In.	Stroke In.			Diam. In.	Face In.			Feet	Inches.	Feet.	Inches.	
3	13	15	50	160	72	12½	3	3½	10	7	6	8	4800
4	13	15	60	160	72	14½	3	3½	10	7	6	8	5000
5	14	18	80	150	84	17½	4	5	12	5	8	7	8100
6	16	18	100	150	84	32½	4	5	12	5	8	7	8500
7	19	23	150	135	96	33	5	6	15	6	9	9	17000
8	22	23	200	135	96	26	6	7	15	6	9	9	17550

These engines can be set to run either "over" or "under" as desired. Pulleys of larger diameter or wider face than above specified, if ordered, will be charged extra. When so ordered, we can furnish an adjustable sole plate for outboard bearing at an extra price.

Sizes Nos. 3 and 4 can be furnished right-hand only, as shown by engraving; Sizes Nos. 5, 6, 7 and 8 can be furnished either right or left hand. Unless otherwise ordered they will be furnished right-hand. Nos. 7 and 8 are furnished with automatic stop governors.

REGAL TWIN ENGINES—THROTTLING TYPE.

FIG. 2204.

These engines are especially intended for heavy duty. They are identical in all respects with the single Regal Engine, being made up of one right and one left hand engine of this type, connected by a single shaft of solid forged steel in one piece, extra large between the bearings. The cranks are set on the quarter, making a dead center impossible, and the arrangement of steam piping permits either engine to be operated alone by simply disconnecting the eccentric rod and connecting rod of the other engine. Both eccentrics and pulley are split to facilitate removal from shaft.

When ordered, complete fixtures include one pulley, one governor (fitted with automatic stop), governor belt, main throttle valve, also separate throttle valve for each engine, with connecting steam piping; oil cups, including centrifugal oiler for each crank pin, sight feed lubricator for each engine and cylinder drip cocks operated by single lever for each cylinder.

Foundation bolts and washers are subject to order as extras at an additional price.

All foundation bolts for these engines, unless otherwise ordered, are six to seven feet in length (depending on size of engines), suitable for brick, stone or cement foundation.

Anything ordered not included in the above list of fixtures will be charged as an extra.

No. of Size	Cylinders		Horse Power Usually Rated.	Rev. Revolutions per Minute.	Pulley.		Steam Pipe	Exhaust Pipe	Length Over All.		Width Over All.		Approximate Wt. Complete.
	Diam. Inches.	Stroke Inches.			Diam. Inches.	Face Inches.	Diam.	Diam.	Feet	Inches.	Feet	Inches.	
5	14	18	160	150	96	23	5	5	12	11½	10	5	15300
6	16	18	200	150	96	26	6	5	13	11½	10	6	15750
7	19	22	300	125	120	29	7	6	16	6	13	3	32000
8	22	22	400	125	120	34	8	7	16	6	13	3	35000

The above engines can be set to run either "over" or "under," as desired. Unless otherwise ordered they will always be arranged to run "over."

Remington Autoloading Rifles

.25, .30-30, .32 and **.35** Calibers, Five Shots, 22 in. Round Special Smokeless Steel Barrel

	Each
Autoloading, No. 1 Grade, Straight Grip, Walnut Stock and Fore-End, Weight 7½ Pounds,	$30.00

.25, .30-30, .32 and **.35** Calibers, Five Shots, Round Special Smokeless Steel Barrels.

	Each
* **Autoloading, No. 3 Grade,** Straight Grip, Selected English Walnut Stock and Fore-End, Checkered,	$40.00
* **Autoloading, No. 4 Grade,** Straight Grip, Fine English Walnut Stock and Fore-End, Fine y Checkered, Scroll Engraving,	60.00
* **Autoloading, No. 5 Grade,** Straight Grip, Best English Walnut Stock and Fore-End, Extra Checkered and Fine Scroll and Game Engraving, Silver Name Plate,	90.00

.25, .30-30, .32 and **35** Calibers, 5 Shots, Round Special Smokeless Steel Barrels

	Each
* **Autoloading, No. 6 Grade,** Straight Grip, Grasstar Walnut Stock and Fore-End, Finely Checkered, Elaborately Engraved, Gold Name-Plate,	$140.00
Extra Clips—For Remington Automatic .25, .30-30, .32 and .35 Calibers	Each $0.10

* Not Carried in Stock, to Order from Factory only. No Extra Charge for Pistol Grip.

Remington Single Shot Rifle

.22, *.25 and **.32** Calibers.

No.	Each
4 -Take Down, 22½ in. Round Barrel, Walnut Stock, Shoots .22 Short, .22 Long and .22 Long Rifle and .32 Short Rim Fire Cartridges,	$8.00

* From Factory only.

For Extra Parts See Pages 1486 and 1489

Laib Co.
1105
Louisville Ky

CONCRETE MIXERS.

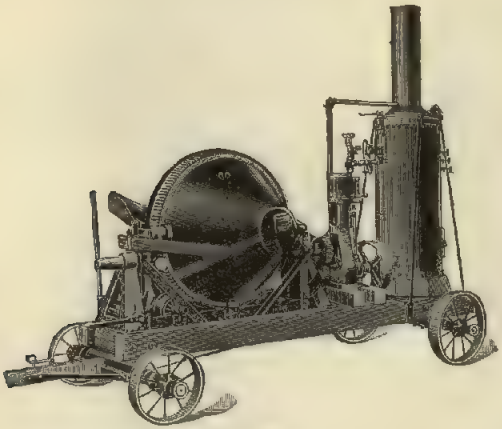


FIG. 3139.

Number	1	2	2½	3
Standard Charge.....cubic feet	9	13½	16	28
Extreme Capacity.....cubic feet	12	17	21	35
Mixing Capacity per hour.....cubic yards	10	16	20	35
Horse Power Required.....	6	8	10	16
Weight on Skids with Pulley.....pounds	2500	3800	4500	7300
Weight on Truck with Pulley.....pounds	3000	4400	5500	.....
Weight Mounted with Steam Engine and Boiler....pounds	5000	7400	8400	.....
Weight Mounted with Gasoline Engine.....pounds	5000	.....	.....	.....

No. 1, will mix a batch of any proportions based on a single bag of cement. No. 2, will mix a batch of any ordinary proportions based on two bags of cement. No. 2½ will mix a batch of very lean concrete, such as is occasionally required, using two bags of cement, or any ordinary concrete using three bags. No. 3, will hold a batch of any proportions using a barrel or 4 bags of cement.

It is a Batch Mixer.

It is fed while running.

It is discharged by tilting while running.

The discharge can be either partial or entire, and is under perfect control.

Complete discharge can be effected in two turns of the Drum.

The mixing speed can be rapid.

The alternating sidewise movement of materials is simultaneous with the rolling over of the materials, and is very efficient.

No laying out of batches in layers is required.

The measured materials can be fed into the Drum in any order.

The quality of the mixture is the best obtainable.

The time per batch is less than with any other machine.

Laib Co.
1104
Louisville Ky.

ROAD ROLLERS.

PLAIN BALLAST BOX ROLLER.

FIG. 3137.

Number of Sections	4	5	6	3	4	5	6
Face, Each Section ....inches	12	12	12	15	15	15	15
Diameter.....inches	36	36	36	48	48	48	48
Weight.....pounds	2500	3000	3500	3500	4500	5500	6500
Price.....each	150.00	175.00	200.00	200.00	250.00	310.00	360.00

REVERSIBLE ROLLER.

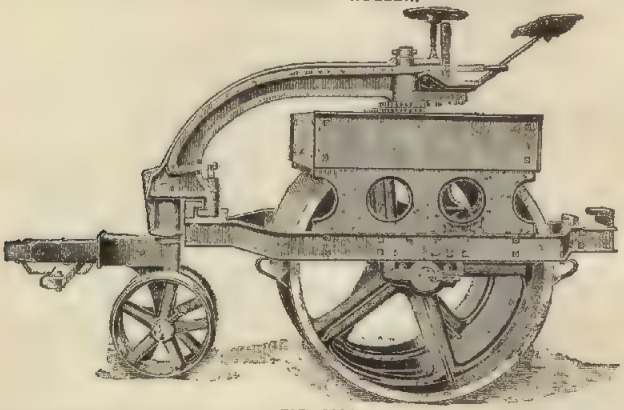


FIG. 3138.

Width.....inches	54	54	54	54
Diameter.....inches	54	56	58	60
Weight.....tons	3	4	5	6

Prices on Application.

THE OLD ORIGINAL AND GENUINE ANCHOR BRAND ROGERS TABLE WARE.

WARRANTED.

WM. ROGERS MFG. CO. ANCHOR BRAND

MAYFLOWER

Tea Spoons.

Nos.	
8165 A1	$3 80
8166 XII	4 40
8197 Triple	5 20

Dessert Spoons.

8168 A1	$6 80
8199 XII	7 60
8200 Triple	8 00

Table Spoons.

8171 A1	$7 60
8172 XII	8 80
8173 Triple	10 40

Dessert Forks.

8174 A1	$6 80
8175 XII	7 60
8176 Triple	8 80

Medium Forks.

8177 A1	$7 60
8178 XII	8 80
8179 Triple	10 40

Twist Butters.

8180 A1	$ 8 40
8181 Triple	11 60

Sugar Shells.

8182 A1	$7 20
8183 Triple	8 80

Ladies.

8184 A1 Cream	$10 80
8185 A1 Gravy	12 00
8186 A1 Oyster	28 40
8217 A1 Medium	38 40
8218 A1 Soup	36 00

Knives.

8188 A1 Pie	$24 00
8190 A1 Cake	19 20

Spoons.

8191 A1 Coffee	$ 3 76
8192 A1 Orange	4 80
8193 A1 Berry	19 20
8194 A1 " gilt	26 40

TIPPED

Tea Spoons.

8197 A1	$3 40
8198 XII	4 00
8197 Triple	4 80

Dessert Spoons.

8198 A1	$6 00
8199 XII	6 80
8200 Triple	8 00

Table Spoons

8201 A1	$6 80
8202 XII	8 00
8203 Triple	9 60

Dessert Forks.

8204 A1	$6 00
8205 XII	6 80
8206 Triple	8 00

Medium Forks.

8207 A1	$6 80
8208 XII	8 00
8209 Triple	9 60

Twist Butters

8210 A1	$ 8 00
8211 Triple	11 20

Sugar Shells

8212 A1	$6 40
8213 Triple	8 00

Ladies.

8214 A1 Cream	$ 8 40
8215 A1 Gravy	12 00
8216 A1 Oyster	28 40
8217 A1 Medium	38 40
8218 A1 Soup	36 00

Knives.

A1 Pie not made
A1 Cake not made

Spoons

A1 Coffee not made
A1 Orange not made
A1 Berry not made
A1 Berry gilt not made

CHELSEA

Tea Spoons.

8219 A1	$3 80
8220 XII	4 40
8221 Triple	5 20

Dessert Spoons.

8222 A1	$ 6 80
8223 XII	7 60
8224 Triple	8 80

Table Spoons

8225 A1	$ 7 60
8226 XII	8 80
8227 Triple	10 40

Dessert Forks.

8228 A1	$6 80
8229 XII	7 60
8230 Triple	8 80

Medium Forks.

8231 A1	$ 7 60
8232 XII	8 80
8233 Triple	10 40

Twist Butters.

8234 A1	$ 8 40
8235 Triple	11 60

Sugar Shells.

8236 A1	$7 20
8237 Triple	8 80

Ladies.

8238 A1 Cream	$10 80
8239 A1 Gravy	14 40
8240 A1 Oyster	31 20
8241 A1 Medium	38 40
8242 A1 Soup	40 80

Knives.

8243 A1 Pie	$24 00
8244 A1 Cake	19 20

Spoons

8245 A1 Coffee	$ 3 70
8246 A1 Orange	4 80
8247 A1 Berry	19 20
8248 A1 gilt	26 40

SHELL

Tea Spoons.

8249 A1	$3 40
8250 XII	4 00
8251 Tripe	4 80

Dessert Spoons.

8252 A1	$6 00
8253 XII	6 80
8254 Triple	8 00

Table Spoons.

8255 A1	$6 80
8256 XII	8 00
8257 Triple	9 60

Dessert Forks.

8258 A1	$6 00
8259 XII	6 80
8260 Tripe	8 00

Medium Forks.

8261 A1	$6 80
8262 XII	8 00
8263 Triple	9 60

Twist Butters.

8264 A1	$8 00
8263 Triple	11 20

Sugar Shells.

8266 A1	$6 00
8267 Triple	8 00

Ladies.

8268 A1 Cream	$ 8.40
0269 A1 Gravy	12 00
8270 A1 Oyster	26 40
8271 A1 Medium	38 40
8272 A Soup	36 00

Knives.

A1 Pie not made
A1 Cake not made

Spoons.

A1 Coffee not made
A1 Orange not made
A1 Berry not made
A1 Berry gilt, not made

AMERICA

Tea Spoons.

8273 A1	$3 80
8274 XII	4 40
8275 Triple	5 20

Dessert Spoons.

8276 A1	$6 80
8277 XII	7 60
8278 Tripe	8 80

Table Spoons

8279 A1	$ 7 60
8280 XII	8 80
8281 Triple	10 40

Dessert Forks.

8282 A1	$6 80
8283 XII	7 60
8284 Triple	8 80

Medium Forks.

8285 A1	$ 7 60
8286 XII	8 80
8287 Triple	10 40

Twist Butters.

8288 A1	$ 8 40
8289 Triple	11 60

Sugar Shells.

8290 A1	$7 20
8291 Triple	8 80

Ladies.

8292 A1 Cream	$10 80
8293 A1 Gravy	14.40
8294 A1 Oyster	31 20
8295 A1 Medium	38 40
8296 A1 Soup	40 80

Knives.

8297 A1 Pie	$24 00
8298 A1 Cake	19 20

Spoons

8299 A1 Coffee	$ 3 76
8300 A1 Orange	4 80
8301 A1 Berry	19 20
8302 A1 " gilt	26 40

RALEIGH

French Gray Only Made in Single Plate.

Tea Spoons.

8303 A1	$3 80

Dessert Spoons.

8304 A1	$6 80

Table Spoons.

8305 A1	$7 60

Dessert Forks.

8306 A1	$6 80

Medium Forks.

8307 A1	$7 60

Twist Butters.

8308 A1	$8 40

Sugar Shells.

8309 A1	$7 20

Ladies.

8310 A1 Cream	$10 80
8311 A1 Gravy	14 40
8312 A1 Oyster	31 20
8313 A1 Medium	38 40
8314 A1 Soup	40 80

Knives.

8315 A1 Pie	$24 00
8316 A1 Cake	19.20

Spoons.

8317 A1 Coffee	$ 3 76
8318 A1 Orange	4 80
8319 A1 Berry	19 20
8320 A1 " gilt	26 40

CAPONIZING SETS.

Fig. 1. Patent Farmers' set, $3.00

Fig. 2. Chinese or No. 6 set, $7.00.

Fig. K. Knife, $0.50

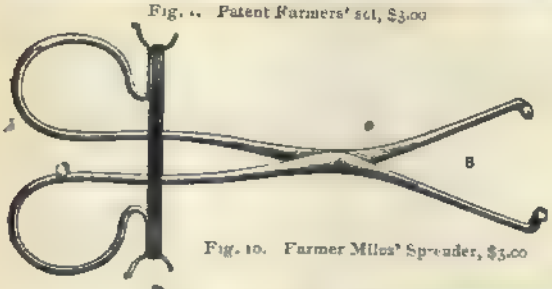


Fig. 10. Farmer Miles' Spreader, $3.00

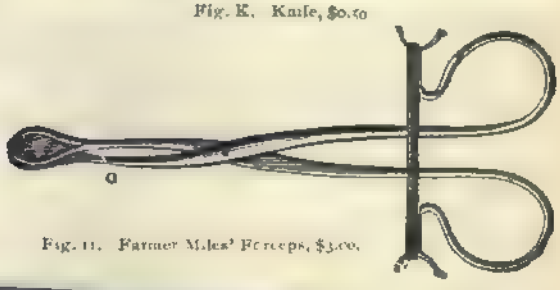


Fig. 11. Farmer Miles' Forceps, $3.00.

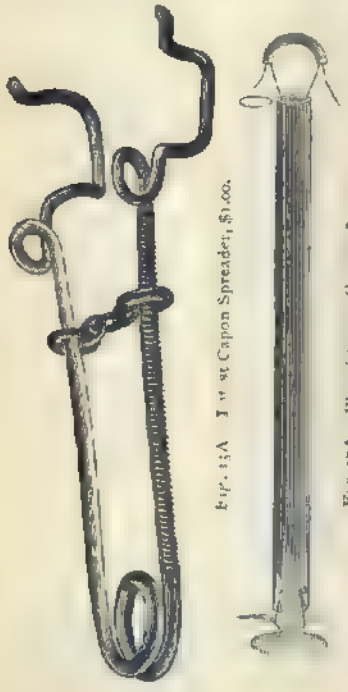


Fig. 13A. Chinese Capon Spreader, $1.00.

Fig. 17A. Plain Chinese Cannula, $0.50.

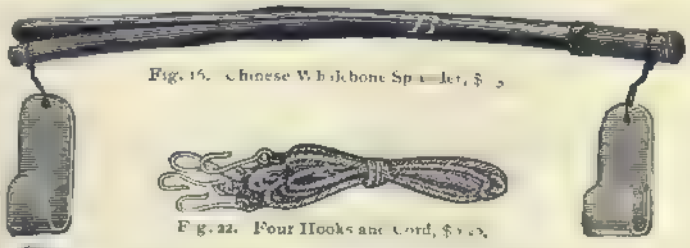


Fig. 16. Chinese Wishbone Spreader, $.

Fig. 22. Four Hooks and Cord, $.

Fig. 20. Chinese Spoon and Hook, $.

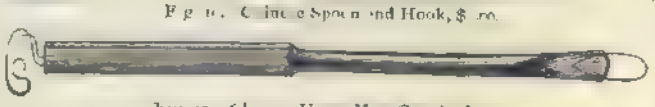


Fig. 17. Chinese Horse Hair Canula, $0.75.

Fig. 18. Chinese Knife and Forceps, $1.00.

Fig. 12. Farmer Miles' Knife, $ .50.

Fig. 21. Caponizing Hook, $0.10.

Fig. 7A. Forceps, $3.00.

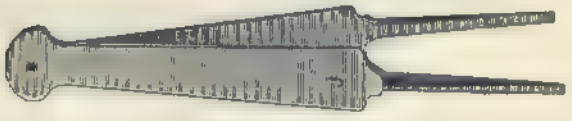


Fig. J. Forceps, $0.50.

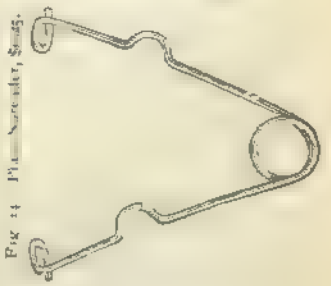


Fig. 14. Plain Spreader, $ .25.

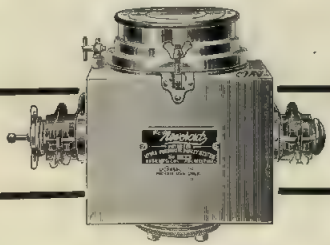
No. 1.	Patent farmers' caponizing set. Fig. 1 in velvet-lined box	Our net price, each,	$3.00
" 2.	Farmer Miles' set consists of Figs. 12, 10, 11, 21 and 22 in velvet-lined box	"	7.00
" 3.	Set consists of Figs. 10, 10, 17, 18 and 22	"	4.00
" 4.	" " " " 18, 13A, 22, 21 and steel wire canula	"	4.00
" 5.	" " " " 17A, 14, 22, 21, K and Pan paste board box	"	3.00
" 6.	Chinese improved set. Fig. 2 in velvet-lined box	"	2.00
" 7.	Set consists of Figs. 7A, 13A, 18, 21 and 22 in velvet-lined box	"	5.00

Sent post paid, on receipt of price.

The Neverout

TRADE MARK

Patent Safety Gas Producer



Makes gas only as needed and is instantly lighted and extinguished.

The gas is pure and dry, and the flame steady, penetrating and intensely white.

Saves its price many times over by its economical use of carbide, and is easily cleaned and recharged.

No danger of explosion, no after generation; no odor or trouble or waste.

No. 55. Non-breakable Maugin Mirror Lens Searchlight Projector, with swinging bracket. Burns acetylene gas.

This patent safety gas producer is the best in every way for providing the gas just as

The Neverout

TRADE MARK

Mirror Lens

Searchlight Projector

is the best for projecting the light.

Write for free illustrated catalogue.

Rose Manufacturing Co.

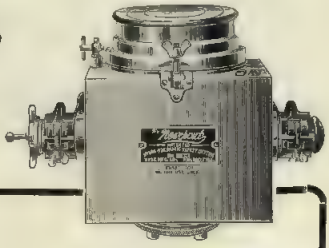
Largest Searchlight Factory in the World.

914 Arch St., Philadelphia

The Neverout

TRADE MARK

Patent Safety Gas Producer



Built on an entirely new principle. Extremely simple in construction, but it makes the best kind of gas for the lighting system of motor-cars and motor-boats.

You can't get a purer or drier quality of gas that burns with such an intense whiteness and steadiness. You can't get any kind of gas so easily, safely and economically. Costs less than ½ cent per hour.

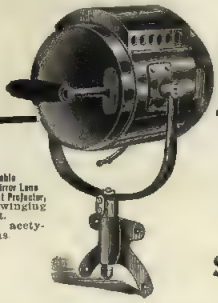
Makes gas only as needed—no gas confined under pressure, no danger of explosion.

Instantly lighted—no waiting. Instantly extinguished—no after-generation or odor.

Money back if not satisfactory

The best light projector to use in connection with this wonderful gas producer, is the *Neverout Mirror Lens Searchlight.* It intensifies and throws out this white penetrating light as no other searchlight can.

Write for free illustrated catalogue.



No. 80. Non-breakable Mangin Mirror Lens Searchlight Projector, with swinging bracket. Burns acetylene gas

Rose Manufacturing Co.

Largest Searchlight Factory in the World,

911 Arch St., Philadelphia

The Neverout

Mirror Lens Searchlight Projector

LOCOMOTIVE HEADLIGHTS.

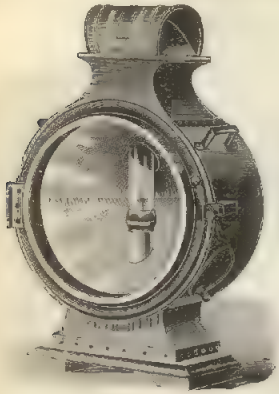


FIG. 778.

No. 6.

ROUND CASE HEADLIGHT.

14-Inch Ogee.

Extreme height, 28 inches.

No. 673.

SQUARE CASE HEADLIGHT.

With Ogee Top.

14 inch,	extreme height	31 inches.
16 "	" "	34 "
18 "	"	37
20 "	"	39
23 "	"	43 "

FIG. 779.

DIETZ NO. 3 GLOBE TUBULAR STREET LAMP.

No. 3 Burner. 1¼-inch Wick. No. 3 Globe.

FOR KEROSENE.

FIG. 777.

No chimney. Light equal to gas at less cost. Patent Globe lifter. Outside wick regulator. Does not smoke. Casts no shadow. Not affected by strongest wind. Can be regulated to burn certain number of hours. Holds sufficient kerosene to burn 20 hours.

No. 3 Globe Tubular Street Lamp (painted green)	each,	$ 6.00
" 3 " " " " brass (painted green)	"	11.00
" 3 " " " " with glass fount	"	6.50
" 3 " " " " brass fount	"	7.00
" 3 Iron brackets (japanned black)	"	1.20
Turned wood posts (chestnut), 6 ft. 6 in. above ground, 2 ft. in ground	"	3.00
Iron post, 6 ft. 6 in. above ground, 2 ft. in ground (japanned black)	"	10.00

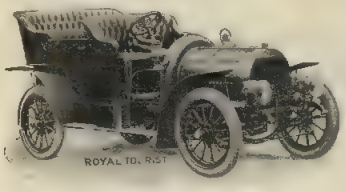
No. 3 Tubular globes	Per doz.,	$6.40
" 3 " burners, brass	"	4.00

We Are Wonderin' If You Know

Why the **Royal Tourist** has come to be known as America's most famous automobile.

Have you ever stopped to think that there is a reason why all Royal owners are so contented and why the Royal is able to accomplish such wonderful results with so little expense and with such an absence of troubles.

Why? Because it is designed properly by the leading motor car engineer along original and correct lines. It is



MODEL F 32-38 H. P. PRICE, $3000

made with care by skillful workmen. It is composed of the best materials that money can buy. It is shipped away to perform so well that it will add fame to the Royal product.

The result. Not one complaint from owners of Royal Tourists this year. Bushel baskets full of complimentary letters.

ROYAL

The Royal Motor Car Co.

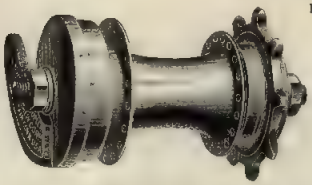
CLEVELAND, OHIO

AGENTS: C. A. Duer & Co., 58th and Broadway, New York. G. J. Dunham, 122 Columbus Ave., Boston. The McDuffee Automobile Co., 1442 Michigan Ave., Chicago. G. W. Caplis, 421 South Fifth St., Minneapolis. Automobile Supply Co., Lim., 24 Temperance St., Toronto. Motor Shop, 317 N. Broad St., Philadelphia. Westminster Automobile Co., 4396 Olive St., St. Louis.

CORBIN HUBS FOR 1905

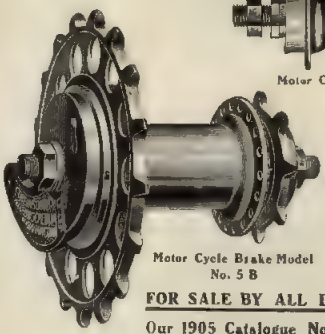
Bicycle Rear Hub Model No. 26

Bicycle Front Hub Model No. 16



Duplex Coaster Brake Model No. 6

Motor Cycle Front Hub Model No. 15



Motor Cycle Brake Model No. 5 B

Special Models for Chainless Tandems and Extra Wide Motor Cycles

FOR SALE BY ALL DEALERS

Our 1905 Catalogue Now Ready

The Corbin Screw Corporation

NEW BRITAIN, CONN.

READING STANDARD

THE NAME

READING STANDARD

stands for a line of bicycles that is without an equal, either as a selling proposition for the dealer, or an investment for the individual buyer. They are the perfection of skill and good workmanship in the handling of the best materials, and are guaranteed to give absolute satisfaction in every respect. Made in the following models:

READING STANDARD Pace-Follower Model	-	List $60 00
READING STANDARD Racer Model - -	-	List 50 00
READING STANDARD Road Racer Model -	-	List 40 00
ROYAL READING ROADSTER, Men's Model	-	List 30 00
ROYAL READING ROADSTER, Ladies' Model	-	List 30 00

Don't delay in arranging for the **READING STANDARD** agency, but write at once for our proposition.

The Thoroughbred

is the motor-cycle of achievement. It does not depend on claims made for it, but proves by a long list of victories on track and road that it is the speediest, sturdiest and most satisfactory motor-cycle on the market. There is no guesswork about the **THOROUGHBRED.** It was built with a definite purpose in view—to give the utmost satisfaction to the rider. "If you really want to ride a 'winner', get the **Thoroughbred.**"

Reading Standard Cycle Mfg. Co.

READING, PENNA., U. S. A.

Leavitt & Bill, San Francisco, Distributers for the State of California.
Scott Supply & Tool Co., Denver, Col., Distributers for the Rocky Mountain States.

READING STANDARD

READING STANDARD

READING STANDARD

DRESSED RUBBER DOLLS
Continued.

No. 5834-12½

No. 5835-12½

5834-12½ Gray Rubber "Tambourine Girl," with whistle. Height, 5½ in. 1 dozen in box. **Per doz., $1.25**

5835-12½ Gray Rubber "Sailor Boy," with whistle. Height, 5½ in. 1 dozen in box. **Per doz., $1.25**

5836-12½ Gray Rubber "Little Red Riding Hood," with whistle. Height, 4¾ in. 1 dozen in box. **Per doz., $1.25**

5841-12½ Assorted Gray Rubber "Baby and Cat in Shoe." Size, 3½x4 in. ½ doz. assorted in box **Per doz., $1.25**

6022-18½ Rubber Monkey on Ball, with elastic cord Height, 6 in. ½ doz. in box. **Per doz., $1.85**

6023-18½ Rubber Baby on Ball. Height 5 in. ½ dozen in box **Per doz., $1.85**

6024-18½ Rubber Boy in Boat. Height, 4¾ in. ½ dozen in box. **Per doz., $1.85**

6025-18½ Rubber Baby and Dog in Shoe. Height, 4½x6 in. ½ dozen in box. **Per doz., $1.85**

6026-18½ Baby in Shoe. Height, 5x5 in. ½ doz. in box **Per doz., $1.85**

6027-18½ Standing Clown. Height, 7 in. ½ dozen in box. **Per doz., $1.85**

6029-18½ Rubber Baby. Height, 6 in. ½ dozen in box. **Per doz., $1.85**

6028-18½ Assorted Baby and Japanese Dolls. Height, 6½ in. ½ dozen in box. **Per doz., $1.85**

5837-18½ Gray Rubber "Fat Boy," with whistle. Height, 6 in. ½ dozen in box. **Per doz. $1.85**

5838-18½ Gray Rubber "Whistling Boy." Height, 7½ in. ½ dozen in box. **Per doz., $1.85**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

DRESSED RUBBER DOLLS
Continued.

5839-18½ Assorted gray rubber fat Boys and baby Girls. Height, 5½ inches ½ dozen in box. Per doz., $1.85

5840-18½ Gray rubber "Baby with Puppies." Height, 6½ in. ½ dozen in box. Per doz., $1.85

5843-20 Gray Rubber Doll. Knitted worsted dress with bell on each shoulder. Height, 7¼ in. ½ dozen in box Per doz., $2.00

5844-40 Gray Rubber Doll. Knitted worsted dress with bell on shoulders Height, 9¼ in ½ dozen in a box. Per doz., $4.00

5842-22½ Assorted gray rubber "Baby and Dog in Shoe." Size, 4½ x 5½ in ½ dozen assorted in box . . . . Per doz., $2.25

5822-22¾ Gray rubber Boy Doll, with whistle. Colored knit worsted dress and hat. Height, 7 in. ½ dozen in box. Per doz., $2.25

5829-40 Gray rubber Sailor Doll, with whistle. Boys and girls assorted. Height, 10 in. ½ dozen assorted in box. Per doz., $4.00

RUBBER ANIMALS.

6030-7½ Assorted Animals on Base, 3⅛ x 3 in. 1 dozen in box. Per doz., $0.75

5845-9 Gray rubber Cats, Dogs, Horses and Geese, assorted in box. Average size, 3 x 4 in. 1 dozen assorted in box. Per doz., $0.90

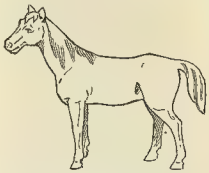
6031-12½ Assorted Animals Average size, 3 x 5 in. 1 dozen assorted in box. Per doz., $1.25

6032-18½ Assorted Animals. Average size, 4 x 5½ in. ½ dozen in box Per doz., $1.85

5846-20 Gray rubber Sheep, Dogs, Horses, Mules and Cats Average size, 4½ x 6 in. 1 dozen assorted in box. Per doz., $2.00

6033-38½ Assorted Animals. Average size, 4½ x 6½ in. ½ dozen in box. Per doz., $3.85

5848-40 Gray Rubber Animals Dog, cat and horse and sheep, assorted. Average size, 5 x 7 in. ½ dozen assorted in pkg. Per doz., $4.00



5849-45 Gray Rubber Animals. Assorted cats, dogs and horses. Average size, 7 x 8½ in. ¼ dozen in pkg Per doz., $4.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Foot Balls

Rugby

Association

Rugby Foot Balls.

No.		Each
F5	—Official Inter Collegiate; Best Imported English Leather Specially Selected and Stretch Removed, made by the most Expert Workmen, Each Ball Carefully Inspected and Packed in a Sealed Box With Special Pure Gum Bladder, Nickel Inflator Lacing Needle and Leather Lace,	$5 00
5J	—Regulation Match, Selected Imported Pebble Grain Leather, Sewed With Waxed Linen Thread, Complete With Pure Gum Bladder, Rawhide Lace and Needle,	4 00
5G	The University Extra Quality American Pebble Grain Leather Sewed With Heavy Waxed Thread, Complete With Pure Gum Bladder, Rawhide Lace and Needle,	3 00
5U	—Regulation, Special Quality American Foot Ball Leather, Complete With Pure Gum Bladder, Leather Lace and Lacing Needle,	2 50
5K	—Academic; Special Pebble Foot Ball Leather, Complete With Pure Gum Bladder, Leather Lace and Lacing Needle,	2 00
5T	—Rugby Special; Selected Pebble Grain Foot Ball Leather, Canvas Lined, Complete With Pure Gum Bladder, Leather Lace and Needle,	1 75
5H	—Champion Superior Quality Pebble Grain Foot Ball Leather, Canvas Lined, Complete With Pure Gum Bladder,	1 50
5S	Practice Made of Extra Grade Pebble Grain Leather Canvas Lined Complete With Pure Gum Bladder,	1 25

All above Balls are Regulation Size.

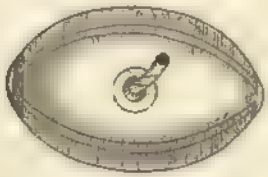
Youth's and Boys' Rugby.

No.		Each
4L	—Youths', Good Grade Selected Grain Leather, Canvas Lined, Pure Gum Bladder,	$1 00
3B	—Boys'; Same as No. 4L Only Smaller Size, With Pure Gum Bladder,	1.00
2B	—Baby Rugby; For Decorative Purposes Only,	50

Association Foot Balls.

No		Each
FA	—Official Association, An Absolutely Perfect Ball and Official for Use in any Game, Finest Selected Imported English Foot Ball Leather in Eight-Piece Official Pattern, with Black Button End, Complete With Nickel Plated Inflator, Pure Gum Bladder, Leather Lace and Lacing Needle,	$5.00
UA	Regulation Association, Finest American Foot Ball Leather Black Button End Sewed With Waxed Linen Thread, Superior Finish, Pure Gum Bladder Leather Lace and Needle,	3.00

FOOT BALL BLADDERS.



No.		Each
6	Rugby; For Regulation Heavy Grain Leather Balls,	$0 75
5	—Rugby; For Regulation Light Weight Leather Balls,	.60
4	—Rugby; For Youth's Balls,	.50
2	—For Baby Rugby,	.25

No		Each
BA	For Grades FA and UA Association Balls,	$1 00
6	—For Grades TA and HA Association Balls	.75
	Needles For Foot Ball Lacing,	.05
	Leather Lacing for Foot Balls,	.05

Railroad Track Chisels.

Code Adalitata. Per Pound
No. 1170—Track Chisels, 3, 3½ and 4½ lbs., Oil Finish, Polished Face, ... $0.40

Rail Forks.

Code Adanctator. Per Pound
No. 1100—Rail Forks, Solid Cast Steel, Average Weight 9 to 14 lbs., ... $0 25

Track Wrenches.

Code Adanctos. Per Pound
No. 1110—Track Wrenches, Solid Cast Steel, for ¾ In. Nuts, Length 20 In., ... $0.25
Average Weight 4 lbs. Each.

Crow Bars.

Wedge Point.

Code Adaudituro. Per Pound
No. 1160—Solid Steel, Weight 10 to 24 lbs., ... $0.10

Pinch Point.

Code Adaudivero. Per Pound
No. 1161—Solid Steel, Weight 10 to 24 lbs., ... $0.10

Railroad Lining Bar.

Code Adaudivi. Per Pound
No. 1150—Solid Steel, Weight 20 to 30 lbs., ... $0.10

Railroad Tamping Bars.

Code Adaugeam. Per Pound
No. 1140—Solid Steel, Weight 20 to 30 lbs., ... $0.10

Railroad Claw.

Code Adaugelant. Per Pound
No. 1120—Solid Steel, With Heel, Weight 20 to 30 lbs., ... $0 10

Car Movers.

Code Adaugmen. Each
No. 3—Sampson Car Mover. Wood Handle, Malleable Castings, Steel Spur, ... $5 00
Weight, 13½ lbs. Each.

Savage Repeating Rifles

MODEL 1903.

.22 Caliber Repeater, Shoots .22 Short, .22 Long or .22 Long Rifle R. F Cartridges, Six Shots.

Model	Each
1903—Take Down, Octagon Barrel, 24 in., Weight 5¼ Pounds,	$14 00

MODEL 1904.

.22 Caliber, Shoots .22 Short, .22 Long or .22 Long Rifle R. F. Cartridges.

Model	Each
1904—Take Down, Round Barrel, 22 in.,	$5.00

Savage Repeating Carbines

.25-35, .30-30, .303, .32-40, .38-55 Calibers, Six Shots

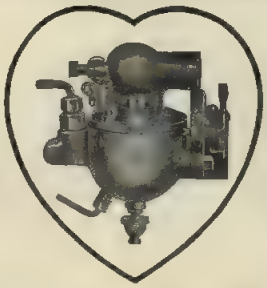
Model	Each
1899—Carbine, Round Barrel, 20 in., Weight 7¾ Pounds,	$20.00

* EXTRAS TO SAVAGE RIFLES (FOR MODELS 1899 AND 1903 ONLY).

Barrels supplied up to 30 in.; over Standard, per in	$1 00	Full Silver Plating, except Barrel,	$10 00
Fancy American Walnut Stocks,	5.00	Gold Plated Trimmings,	10 00
Fancy English Walnut Stocks,	10.00	Full Gold Plating, except Barrel,	22 00
Fancy Circassian Walnut Stocks,	15.00	Matted Barrels,	5 00
*Checking Stocks, Grade A2	2.00	Extra Finish on ordinary Stock,	2 00
*Checking Stocks, Grade A3,	3.00	*Swivel and Sling Trap,	1 50
*Checking Stocks, Grade A5,	5 00	Leaving off Rear Sight Slot,	1 00
*Checking Stocks, Grade B,	8.00	Changing positon Rear Sight Slot,	1 00
*Checking Stocks, Grade C.	15 00	Cheek Piece,	6 00
Nickel Plated Trimmings,	2.50	*Pistol Grip,	2.50
Full Nickel Plating, except Barrel,	4.00	Altering Length of Butt Stock or Drop,	10 00
Silver Plated Trimmings,	4.00	Silver Plate with Name and Scroll,	5 00

* From Factory only. Extras Marked (*) Apply only to Model 1899 Rifles.

The Heart



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SCHEBLER SPECIAL for Cadillacs, Price, $20.00
OLDSMOBILE Carburetor, - - " 18.00
FORD, Two-Cylinder, - - - - " 18.00

STANDARD SIZES WILL FIT ALL OTHER AUTOMOBILES

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NATIONAL ELEC. SUPPLY CO., Washington, D. C.
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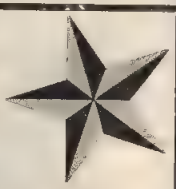
IT IS THE **HILDRETH MARINE MOTOR** 1½ TO 24 H. P.



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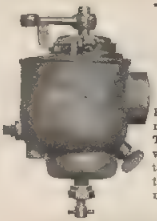
HILDRETH MOTOR CO. 43 River Street, Lansing, Mich., U. S. A.

"The Reeves" Variable Speed Transmission

Applicable to any machine requiring variable speeds. Gives any speed desired. This means better work, and more of it.

REEVES PULLEY CO., Columbus Indiana



Schmidt Carburetors

Produce a uniform mixture at all speeds. Tilting of car or launch will not affect the mixture. Write for illustrated descriptive matter.

MINN BOAT & POWER WORKS Stillwater, Minn.

William B. Judd

PATTERN MAKER

Waterbury, Conn.

Patterns of all descriptions for Gasoline Engines.

Clipper Sharpener and Surface Grinder

Profitable in Every Repair Shop

Clippers sharpened in 5 minutes, earning 60 cents. Descriptive circular and prices, address

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Blue Flame Kerosene Burners
Water Level,
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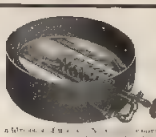

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Knock-down Frames, etc.

Launches from $200 up.

Send for catalog and prices.

F. P. NEUMEISTER, Rockford, Ill.

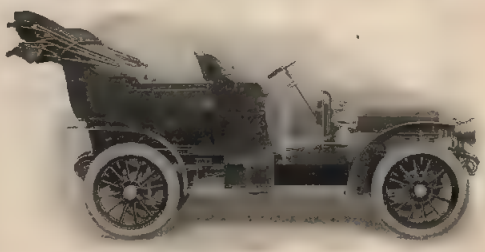
The TOKHEIM Gasoline Outfits

have many exclusive features of great merit, combining Safety, Convenience and Economy. Outfits of all sizes and in many styles for public supply stations and private garage. Write for catalogs and prices.

The Tokheim Manufacturing Company

Cedar Rapids, Iowa

WINTON



UP-KEEP REDUCED BY WINTON MODEL K LUBRICATION

Why lubricate the bearings of a motor car?

Because two metal parts rubbing together would soon be ruined by friction and wear

How does lubrication prevent friction and wear?

Proper lubrication forces oil into the bearings so that a film of lubricant separates the moving parts. Hence these parts do not touch and cannot wear. But the oil does wear.

So you must choose whether you want a car that wears out its expensive steel and brass bearings, or one that wears out oil, which is much cheaper and which preserves the costly bearings

If the oiling system is faulty, the damage is quite as much as if you have no lubrication at all. Because then **both** the bearings **and** the oil are **worn** by friction.

Economy of Up-Keep demands a perfect system of lubrication

The Winton Model K has the best system of lubrication on earth.

Oil is fed in **adjustable measured** quantity to **each** bearing. Therefore there is no waste of oil. But instead, **all** the while **each** bearing gets **all** the oil it needs.

This oiler feeds **only** when the engine is in motion. That also prevents waste.

Oil is fed at **regular intervals**, so that the bearings are **never** flooded and **never** starved, but are **always** sufficiently fed.

But suppose all other oilers had these same points of merit—which they do not have. There are still other exclusive features that make Winton Model K lubrication infinitely the most positive, reliable and expense-saving.

First—There are no valves to clog and get out of order.

Second—Oil is **not** fed by gravity nor by air pressure, but by **mechanical force.** Clogged tubes can stop gravity-fed oil before it ever gets to the bearings. And air pressure can leak so that the oil stands idle in the tubes. But the Winton Model K lubricator exerts mechanical pressure so powerful that even in the most frigid weather lubricating **oil cannot stop** in the tubes or in the reservoir (on the dash), but **must reach the bearings** and there **prevent** friction and wear. This Winton Model K oiler positively **shoots** oil to the bearings with the force of a catapult and the accuracy of mathematics. That means money saved to you.

No excuse for buying a car that ruins its own bearings, when you can get the perfectly lubricated, expense saving Winton Model K.

WINTON MODEL K—Four cylinder vertical water-cooled [illegible] in stroke. [illegible] clutch transmission. Worm Axle Gear and Worm Driven Split [illegible] Lubrication [illegible] and [illegible] simple and positive. [illegible] Cleveland. Catalog No. [illegible]

The Winton Motor Carriage Co.

Cleveland, Ohio, U. S. A.

Member A. L. A. M.

Laib Co.
412
Louisville Ky

Self Contained Automatic Cut-off Engine.

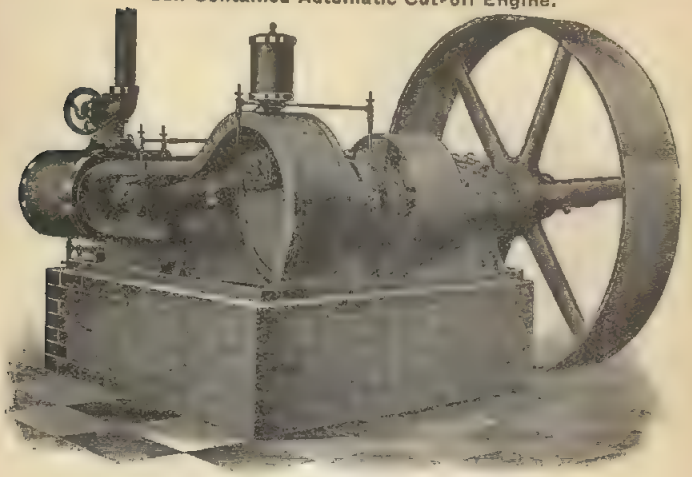


FIG. 1064

Detached Pattern Automatic Cut-off Engine.

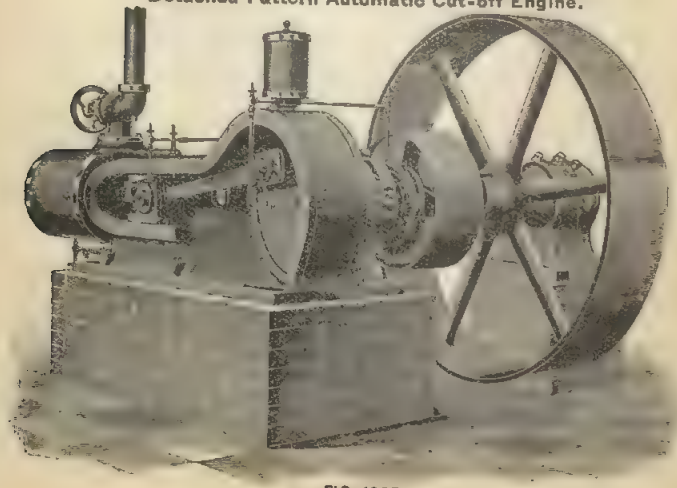


FIG. 1065.

For Specifications, see page 413.

STEAM ENGINES.

Standard Automatic Cut-off Engines.

Horse Power at 80 Pounds Initial Pressure.	Horse Power at 100 Pounds Initial Pressure.	Horse Power at 125 Pounds Initial Pressure.	Cylinder, Inches.	Steam Pipe, Inches.	Exhaust-Pipe, Inches.	Diameter of Shaft, Inches.	Available Length of Shaft Outside of bearing on Self-Contained Engine, Inches.	Space on Shaft Between Governor Wheel and Outside Bearing: Detached Engine, Inches.	Diameter of Band Wheel, Inches.	Face of Band Wheel, Inches.	Diam. of Governor Wheel, Inches.	Width of Governor Wheel, Inches.	Revolutions Per Minute,	Height from Bottom of Engine bed to Center of Cylinder, Inches.	Length over All, Inches.	Width over All, Inches.	Weight, Pounds.
15	18	21	6x8	2	2½	2 7/16	13	11⅜	44	7½	16	8½	325	9½	73	55	2000
20	23	26	7x8	2½	3	2⅞	13	11¾	44	8½	16	8½	325	9½	73	55	2100
30	35	40	8x10	3	3½	3 3/16	15⅜	15½	48	9½	18	9¼	300	11	86	65	3200
40	45	50	9x10	3	3½	3 3/16	15½	15½	49	10½	18	9¼	300	11	86	65	3400
50	60	70	10x12	3½	4	4⅜	21½	22½	60	12½	21	9	275	13	104	79	4700
60	70	80	11x12	3½	4	4 3/16	21½	22½	60	13½	21	9	275	13	104	79	5000
75	90	105	12x14	4	5	5⅜	20½	21	67	14½	24	10½	250	15	120	86	7200
90	105	120	13x14	4	5	5½	20½	21	67	15½	24	10½	250	15	120	86	7600
110	130	150	14x16	4½	6	6 3/16	22	22½	74	17	27	10½	225	17	135	97	11000
125	145	165	15x16	5	6	6⅜	22	22½	74	19	27	10½	225	17	135	97	11500
150	185	220	17x18	6	7	7⅜	.....	27½	82	21	48	11½	200	19	157	109	17400
180	215	250	18x18	6	7	7½	.....	27½	82	23	48	11½	200	19	157	109	18000

Prices on application.

All engines of this type are left-hand side crank engines.

All sizes of engines up to and including the 15x16 size are regularly made self contained.

The 17x18 and larger engines are only made in the detached style. The fixtures included with each engine are: Rites Inertia Governor, Band Fly Wheel, Elbow Throttle Valve, Nickel Plated Double Glass Sight-Feed Cylinder Lubricator and connections, Cylinder Drain Cocks with pipe connections to exhaust pipe, Valve for draining steam chest and pipe connection to exhaust pipe, Special Wrenches, Foundation Bolts and Plates, Cast Iron Oil Guard for crank wheel, Oil Gauges for the self oiling main shaft journals, Oil Cocks for oil catcher around engine bed, and the Complete Tank Oiling System as described for oiling the engine, including the Centrifugal Oiler for main wrist pin and Wipe Oiler for the crosshead.

On special finished engines a cast iron oil guard is furnished for the eccentric.

Foundation Plans and full directions for setting up and operating accompany each outfit.

Women's Single Barrel Shot Guns.

Defiance.

Side Lever, Rebounding Lock, Matted Rib, Checkered Grip and Fore-end, Case Hardened Lock and Mountings, Walnut Stock, Steel Butt Plate, Remington Action.

Each

No. 90—44 Caliber, Shot Cartridge, 26 In. Blued Steel Barrel, Weight 4 lbs., ... $12.00

Chiquita.

Side Lever, Rebounding Lock, Matted Rib, Checkered Straight Grip and Fore-end, Case Hardened Lock and Mountings, High Grade Skeleton Walnut Stock.

Each

No. 100—44 Caliber, Shot Cartridge, 24 In Half Octagon Smokeless Steel Barrel, Weight 3¼ lbs., $21 00

BAKER & HAMILTON

Women's Double Barrel Shot Guns.

Gem.

Top Lever, Rebounding Back Action Locks, Circular Hammers Extension Rib, Dove Tailed Bolt, Checkered Pistol Grip and Patent Fore-end, Case Hardened Locks and Mountings, Oiled Walnut Stock, Steel Butt Plate

Each

No. 95—44 Caliber, Shot Cartridge, 26 In. Twist Finish Steel Barrels, Weight 4 lbs., ... $15.00

Senorita.

Side Lever, Rebounding Locks Low Circular Hammers, Matted Rib, Checkered Straight Grip and Fore-end, Case Hardened Locks and Mounting, Extra Selected Oiled Walnut Stock, Rubber Butt Plate.

Each

No. 110—20 Gauge, 26 In. Blued Smokeless Steel Barrels, Weight 5¾ lbs., ... $35.00

Single Barrel Shot Guns.

Davis.

Top Lever Action Rebounding Hammer, Pistol Grip, Patent Snap Fore End, Re-Inforced Breech, Case Hardened Lock and Mountings, Oiled Walnut Stock, Rubber Butt Plate, Choke Bored.

Davis, Non-Ejector.

	Each
No. 205 —12 Gauge, 30 In. Blued Steel Barrel, Weight 7 lbs.,	$7.00

Davis, Ejector.

No. 205E—12 Gauge, 30 In. Blued Steel Barrel, Weight 7 lbs.,	7.50

Davenport Hammer, Ejector.

Top Lever Action Rebounding Hammer, Pistol Grip Patent Fore End, Case Hardened Locks and Mountings, Oiled Walnut Stock, Rubber Butt Plate.

	Each
No. 210E—12 Gauge, 30 In. Blued Steel Barrel, Weight 6½ lbs.,	$8.00

Stevens Hammerless, Ejector.

Top Lever Action, Rebounding Locks, Checkered Pistol Grip, Top Snap Fore-End, Case Hardened Locks and Mountings, Walnut Stock, Rubber Butt Plate, Barrel Choke Bored

	Each
No. 215E—12 Gauge, 30 In. Blued Steel Barrel, Weight 7 lbs ,	$12.00
No. 217E—16 Gauge, 28 In. Blued Steel Barrel, Weight 6¼ lbs.,	12.00

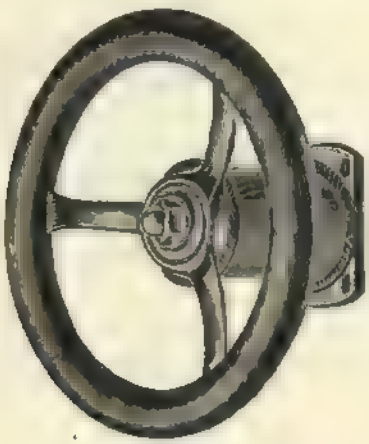
Motor Boat and Launch Steering Wheels

No. 214—Steering Wheel
Galvanized with Wood Drum and Handles

Diam. Wheel	Diam. Drum	Length Drum	Each
12 in.	2 in.	3½ in	$3 50
16 in.	2½ in.	3¾ in	4 50
20 in.	4 in.	4½ in	10 00

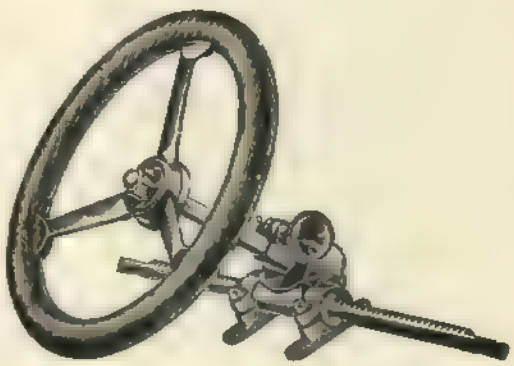
No. 211—Steering Wheel
All Mahogany, with Brass Check and Hub

Diam. Wheel	Each
20 in	$12 00
24 in	13 00



No. 213C—Side Steering
Wood Rim, Brass Spokes

Diam. Wheel	Drum	Each
7½ in.	2½×2 in	$4.75
10½ in	3⅛×2 in	5.50



No. 212B—Auto-Boat Steerer
Wheel can be adjusted to any angle

No.	Each
212B—Rack ¾×32 in., Diam. Wheel 13 in., Shaft ⅞×11 in	$19.80

QUADRANT TILLER

For Launches

No.	Each
209A—9 in. Heavy Pattern, Galvanized	$2 00

Gipsy Windlass

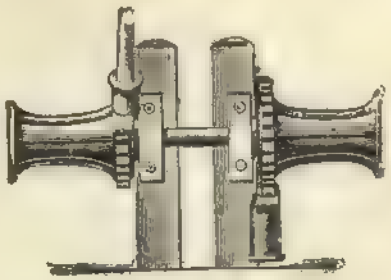
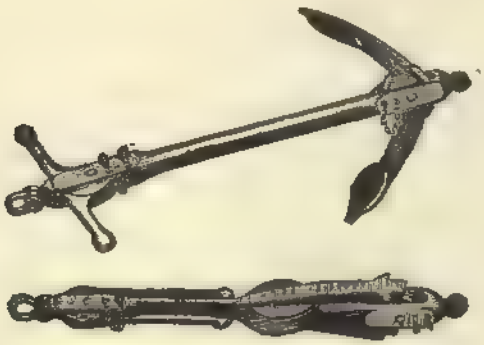


Fig. 185

Size No.	Plain	Each
E	Length Head 5¼ in., Diam. of Head, Outside End, 4½ in.; for $\frac{3}{16}$ in. Chain Weight about 35 Pounds	$8 00

Anchors



Dirigo, Patent Folding
Galvanized

Weight, Pounds	10	16	26	32	34
Each	$2 50	3 50	....	....	....
Per Pound			$0 20	20	20

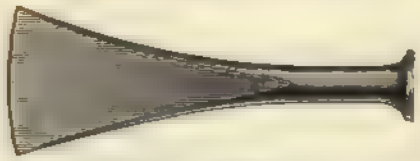
Providence, Stockless Anchor
Galvanized

Weight, Pounds	5	10	15	20
Each	$1 50	2.50	3 50	4.50
Weight	25	30	40	50
Each	$5 50	6 50	8 00	9 00

Launch Steering Wheels

No. 213—Polished Brass Flat Spokes and Rims, Mahogany Handles	Each
12 in. Wheel, Size Drum 2⅜ in. Diam., 2¾ in. Long	$6 00
16 in. Wheel, Size Drum 2¾ in. Diam., 3½ in. Long	7 00
20 in. Wheel, Size Drum 3⅜ in. Diam., 5¾ in. Long	15 00

Calking Irons



Calking or Making Irons

No.	Per Doz	No.	Per Doz
0 Crease, 1/32, 3/64, 1/16 in. Thick, 5½ in Long	$7 00	1 Crease, 1/8 in. Thick, 6 in. Long	$7 00
0 Crease, 1/16 in. Thick, 6 in. Long	7 00	2 Crease, 3/32 in. Thick, 5½ in Long	7 00
1 Crease, 1/8 in. Thick, 5½ in. Long	7 00	2 Crease, 1/16 in Thick, 6 in. Long	7 00

The term "Crease," as applied to Calking Irons, is intended to designate the Thickness. Thus "0 Crease" is understood to mean 1-16 in. thick and thinner; "1 Crease" ⅛ in., "2 Crease" 3-16 in. and "3 Crease" ¼ in.

Deck or Dumb Irons — Per Doz $8 00

Bent Irons, 1/16 and 1/8 in Thick — Per Doz $8 50

Spike Irons—Straight ..... Per Doz. $7.00

Reefing Irons, 10, 12 and 14 in ..... Per Doz. $12.00

Butt Irons ..... Per Doz. $9.00

Coppering Punches

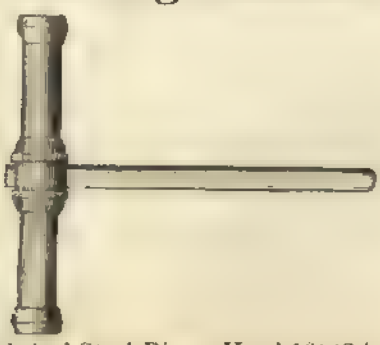
No.	Per Doz.
66—Best Cast Steel, Polished	$9.00

Marlin Spikes

Steel Points, Polished

Length, Inches	10	12	16
Per Doz	$8.00	10.00	19.00

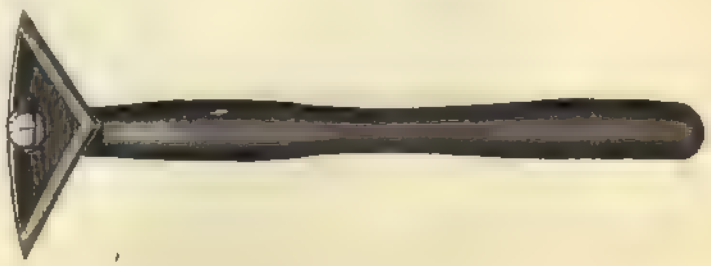
Calking Mallets



Polished Steel Rings, Head 16×2 in.

	Per Doz.
Live Oak	$50.00
Mesquite	60.00

Ship Scrapers



No.	Per Doz
8—Cast Steel Blades, Cut 5 in., Handles 16 in. long	$7.50

Coopers Froes

No. 10—Cast Steel Blade

Length, Inches	12	14	16
Weight per Doz., Pounds	50	58	65
Per Doz	$14.00	14 50	15.00

Coopers Hoop Drivers

Nantucket

Short and Oval

No.	Per Doz.
98—Steel, Unhandled	$15.00

No.	Per Doz.
99—Steel, Unhandled	$22 50

Hickory

No.	Per Doz.
100—Finished Hickory, with Wrought Iron Rings	$8.00

Coopers Adzes

Handled with Applewood Handles

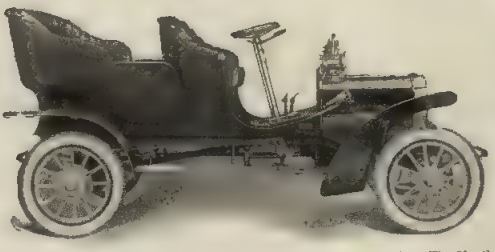
No.	1	1½	2
Cut, Inches	3¼	3	2¾
Weight, Pounds	4	3½	3
Per Doz	$60.00	57 00	54.00

Bung Starters

Extra Quality, Flat Spring Handle

No.	Per Doz.
10—Bung Starters	$5.00

THE SILENT NORTHERN



You cannot enjoy touring unless your car rides comfortably. The Northern Touring Car with full elliptical springs is the most comfortable riding car in the world. Absolutely Noiseless, no belts, chains, gaskets, truss rods or strut rods to to give trouble. New mechanical features of real value. Why not send for our catalogue and learn more about the latest development in construction?

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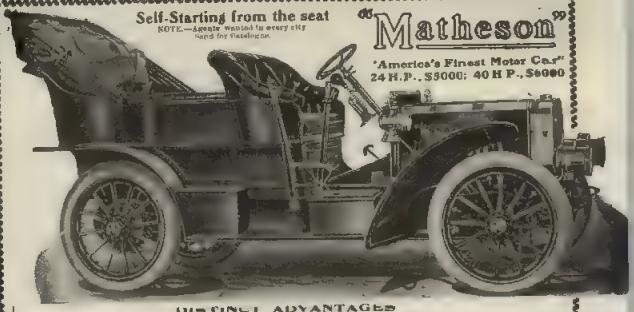
"America's Finest Motor Car"
24 H.P., $3000; 40 H.P., $4000



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WONDERFUL POWER
AUTOMATIC CARBURETOR, never requires adjustment.
AUTOMATIC SPEED CONTROL by Governor
AUTOMATIC LUBRICATION
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SINGLE LEVER CONTROL
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IRREVERSIBLE STEERING GEAR
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NEW ENGLISH ALUMINUM BODY
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Members A. L. A. M.

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Very Recent Production.

French Gray Finish. Raised Border.
The Design is Especially Pleasing in Beauty and Artistic Effects.

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Heavy Weight.

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Medium Weight
No 5626. $16.66
Heavy Weight.

CHANTILLY
PATTERN.

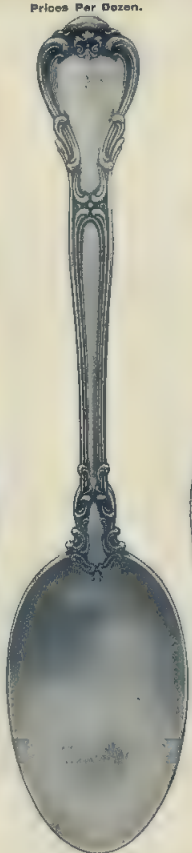

TABLE SPOON.
$39 66 No. 5628 Heavy Weight..... $48 96

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Raised Floral Border.

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Heavy Weight.

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PATTERN.

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Medium Weight.
No. 5632 $50.00
Heavy Weight
Dessert Spoon.
No. 5633. $28.40
Medium Weight
No. 5634. $34.50
Heavy Weight.

No. 5627 Medium Weight

DESSERT FORK.

No. 5635. Table Fork, Medium Weight $42 20
No. 5636. Table Fork, Heavy Weight 50 00
No. 5637 Dessert Fork, Medium Weight $28 40
No. 5638 Dessert Fork Heavy Weight 34 50

TABLE FORK.

No. 5639. Table Fork, Medium Weight..... $39 66
No. 5640. Table Fork, Heavy Weight 48 96
No. 5641 Dessert Fork, Medium Weight $26 68
No. 5642. Dessert Fork, Heavy Weight 32 06

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Bright Polished Silver, Raised Beaded Border, Heavy Weight

Prices Per Dozen.

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Unique Design and Very Popular Extra Heavy Weight. Faceted Bowls

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Heavy

Dessert Fork.
No. 5644. $29.90
Heavy

DESSERT SPOON.

No. 5645. $29.90
Heavy.

"CANTERBURY" PATTERN.

TEA SPOON.

No. 5646. $12.08
Small

No. 5647. $14.36
Medium.

No. 5648. $18.40
Heavy

"COLONIAL" PATTERN.

TEA SPOON.

No. 5649. $21.84
Medium.

No. 5650. $26.44
Heavy.

DESSERT SPOON.

No. 5651. $43.70
Medium.

No. 5652. $52.90
Heavy.

Table Spoon.
No. 5653. $58.80
Medium

No. 5654. $70.14
Heavy.

DESSERT FORK.

Table Fork
No. 5655. $57.50
Medium.

No. 5656. $68.54
Heavy.

Dessert Fork.
No. 5657. $43.70
Medium

No. 5658. $52 90
Heavy

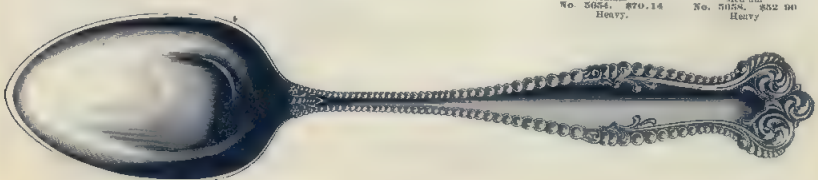

TABLE SPOON.

No. 5659 Table Spoon, Heavy Weight $40.24

STERLING SILVER, 925/1000 FINE, EXTRA HEAVY MASSIVE DESIGNS.

FRENCH GRAY FINISH.

Prices per Dozen.

These designs are brought out in high relief and for beauty and excellence of workmanship they are unexcelled

LES CINQ FLEURS.

The Five Flowers.

Representing in the Decorations:

Tea Spoons—Wild Rose.
Dessert Spoons—Poppy.
Table Spoons—Peony
Dessert Spoons—Fleur-de-Lis
Table Forks—Orchid

LA PARISIENNE.

Representing in the Decorations:

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Dessert Spoons—Water Lily.
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Dessert Forks—Peony
Table Forks—Tulip.

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Dessert Spoon
Extra Heavy

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Tea Spoon
Extra Heavy

No. 5602. $67.20
Table Spoon
Extra Heavy

No. 5603. $28.80
Tea Spoon
Extra Heavy

No. 5604 $48.00
Dessert Spoon
Extra Heavy

No. 5605. $67.20
Table Spoon
Extra Heavy

Dessert Fork

No. 5606. Table Fork, Extra Heavy. Per Dozen $67.20
No. 5607 Dessert Fork Extra Heavy Per Dozen 48.00

Table Fork

No. 5608. Table Fork, Extra Heavy Per Dozen, $67.20
No. 5609 Dessert Fork, Extra Heavy Per Dozen, 48.00

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Recent Production.
A Beautiful Floral Design. Rich and Massive.
French Gray Finish.

Prices Per Dozen.

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One of the Most Popular Designs now on the Market.
Bright Finish. Raised Rococo Border.

Pieces to match can be found on Pages 310 to 325.

TABLE FORK.
French Gray
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Extra Heavy
No. 5011. $42.24
Dessert Fork,
Extra Heavy.

DESSERT SPOON.
French Gray
No. 5012. $47.40
Extra Heavy

LILY PATTERN.

TEA SPOON.
French Gray
No. 5013. $27.16
Medium Weight.
No. 5014. $20.80
Heavy Weight.

LOUIS XV PATTERN.

TEA SPOON.
Burnished.
No. 5015. $14.00
Medium Weight.
No. 5016. $17.70
Heavy Weight.

DESSERT SPOON.
Burnished.
No. 5017. $36.80
Table Spoon.
Heavy Weight.
No. 5018. $28.64
Dessert Spoon
Heavy Weight

DESSERT FORK.
Burnished.
No. 5019. $36.60
Table Fork.
Heavy Weight.
No. 5020. $28.64
Dessert Fork.
Heavy Weight.

Table Spoon.

No. 5021 Table Spoons, Heavy Weight, French Gray Finish.....Per Dozen $61 80

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Illustrations One-third Size. Prices Each.

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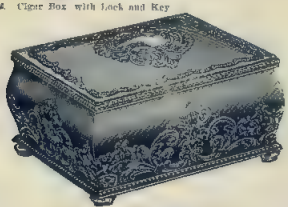

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Dimensions, 14x6½x7½ inches. Iron Burnished Applied Silver.

No. 6955. CIGAR BOX. $18.00
Indian Gray. Two compartments for Cigars and one for Moistener.
Dimensions, 10x6½x7½ in.

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Smoking Set, Gold Plated and Burnished. Four Pieces. Cigar Holder, Ash Tray, Match Holder and Tray. Oblong Tray, Scalloped Edge.

No. 6958. SMOKING SET. $2.75
Satin Gold Plated and Burnished. Four Pieces. Cigar Holder, Ash Tray, Match Holder and Tray. Embossed Rococo Edge.

No. 6957. SMOKING SET. $3.50
Gold Plated and Burnished. Five Pieces. Cigar Holder, Ash Tray, Match Holder, Lamp and Tray.

No. 6938. $1.50
Cigar or Tobacco Jar. Embossed Top. Cut Glass Effect.

No. 6940. $1 80
Tobacco Jar. Glass Jar. Embossed Gold Plated Top, with Silver Pipe on Top.

No. 6961. $4.32
Cigar Jar. Satin Bright Cut. Height, 6¾ in.

No. 6962. $8.50
Cigar Jar. Silver Plated Medallion Top. Height, 6½ in.

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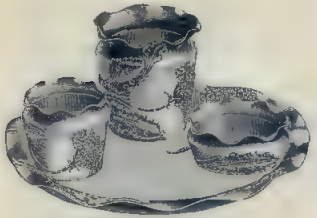
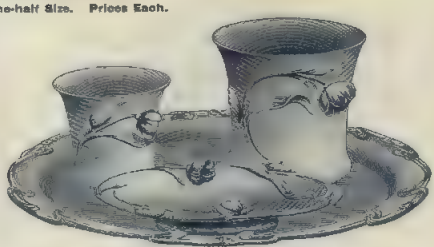
SMOKING SETS.

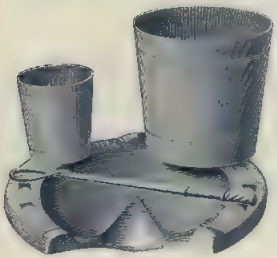
Illustrations One-half Size. Prices Each.



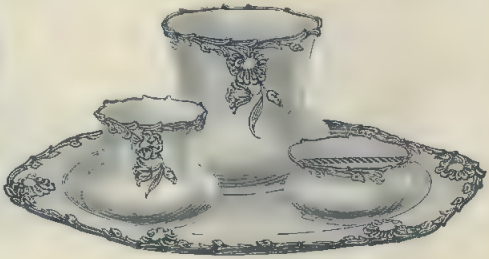
No. 6963. SMOKING SET. $7.00
Four Pieces. Butler Finish. Applied Decoration



No. 6964. SMOKING SET. $9.25
French Gray Finish. Gold Lined. Diameter Stand



No. 6965. SMOKING SET. $6.25
Three Pieces. Burnished Gold Lined. One-half Size



No. 6966. SMOKING SET. $8.00
Burnished or French Gray

No. 6967. SMOKING SET. $4.00
Satin Engraved. Gold Lined

No. 6968. SMOKING SET. $3.10
Four Pieces. Satin Engraved. Gold Lined

No. 6969. SMOKING SET. $2.10
Four Pieces, Satin Bright Cut.

No. 6970. CIGAR HOLDER. $0.75
4½x3¾x3 inch

No. 6971. SMOKING SET. $3.10
Four Pieces, Satin Engraved

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KENOSHA, WISCONSIN

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FINELY ENAMELED AND ENGRAVED.

Estimates Furnished for Special Emblems. All Emblem Rings are 10 Karat Quality, Unless Otherwise Mentioned.

Price Each.

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B. P. O. Elks, Raised Head, Ruby Eyes
Enameled, 10k.

No. 3472. $2 84
Sterling Silver,
B. P. O. Elks,
Raised Head,
Enameled Dial Gray
Finish

No. 3473. $15 00
Raised Emblem
Heavy 14k Gold
Raised Letters
Hand Engraved

No. 3474. $15 00
Heavy, Half Round, Engraved Eagle
Enameled Emblem

No. 3475. $12.00
Heavy 10k Signet Ring
Fine Raised Eagle,
Rose Finish

No. 3476. $8.25
Polished, Flat Band
Raised Engraved Eagle
Enameled Emblem

No. 3477. $9 00
Fraternal Order of Eagles
Heavy 10k. Rose Finish
Knife Emblem, Signet or Seal Style

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Raised Engraved Eagle
Enameled Emblem

No. 3479. $9 50
Raised Engraved, Eagle
Enameled Emblem

No. 3480. $6 75
Improved Order of Redmen
Raised Emblem, Enameled and Chased,
Flat Band

No. 3481. $11 50
Improved Order of Redmen
Heavy, Raised Emblem Enameled
Flat Band

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Knights of the Maccabees,
Raised Emblem, Enameled and Chased

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Knights of Columbus
Raised Emblem Enameled

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M. W. A. Ring
No. 3485. $6 75
W. O. W. Ring

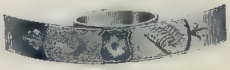
No. 3486. $7 00
Knights of the World
Raised Emblem, Enameled
Letters Engraved

No. 3487. $6 75
Red Men of the World
Raised Center Emblem.

No. 3488. $6 75
Ancient Order United Workmen
Raised Center Emblem

No. 3489. $6 75
Raised and
Engraved.

No 3490. $7 00
Royal Neighbors
Emblem



No. 3491. $6 75
Junior Order of United American Mechanics
Raised Center Emblem

No. 3492. $6 75
Brotherhood of Locomotive Engineers
No. 3493. $6 75
Brotherhood of Locomotive Firemen
Chased and Enameled

No. 3494. $8 00
Brotherhood of Railway Trainmen
Raised Emblem, Chased and Enameled

No. 3495. $6 75
Raised Emblem, Chased and Enameled

No. 3496. $8 50
Ladies of the Maccabees,
Raised Emblem Chased and Enameled.

No. 3497. $17 50
Raised and Engraved,
Ring and Monogram
Plain
No. 3498. $19.50
Ring and Monogram
Colored Gold

No. 3499. $5 75
Class Ring
Raised Figures and
Letters,
Any Year

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Class Ring
Raised Figures and
Letters,
Any Year

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Class Ring
Roman, Polished
Raised Signet

INITIAL RINGS, MEDIUM POPULAR PRICED LINE.

Price Each. Any Initial.

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Heavy, Plain Shank.
Raised Engraved
Initial, 10k

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9 Diamonds.
Raised Engraved
Initial 8k

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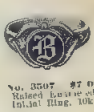
9 Diamonds
Raised Engraved
Initial, 8k

No 3505. $3 85
Raised Engraved
Initial, 8k

No. 3506. $2 75
Raised, Engraved
Initial, 8k



No. 3507. $7 00
Raised Engraved
Initial Ring, 10k

Water Bags.

South African.

	Code Antojaron.	Each
No. 2½—Capacity 2½ Gallons,		$2 00
Weight, 1 lb. Each.		
No. 5 —Capacity 5 Gallons,	Code Antolasa.	3.00
Weight, 1½ lbs. Each.		

The South African Water Bag is Made of Waterproofed Canvas and will Keep Water Cool for Thirty-six Hours.

It is Bag [illegible] for use in crossing [illegible] Teams on Threshing Crews and to all Persons working a long way from water.

BAKER & HAMILTON

Harvest Kegs.

Red Oak, Steel Hoops, with Handle.

Capacity, Gallons,	1	2	3
Code	Antonym.	Antosmio.	Antrace.
Weight Per Dozen, lbs.,	48	72	96
Per Dozen,	$4.80	6.00	7.40

TIN TUBULAR LANTERNS.

SIDE SPRING SAFETY.
HOT BLAST.

FIG. 2063.
No. 0.

SIDE SPRING SAFETY.
HOT BLAST.

FIG. 2064.
No. 2.

CLIPPER LIFT.
COLD BLAST.

FIG. 2065.
No. 2.

Railroad Lanterns; for Sperm or Kerosene Oil.

TIN BOTTOM.

FIG. 2066.
No. 39.

WIRE BOTTOM.

FIG. 2067.
No. 39.

Figure, Number.	Lantern, Number.	Globe, Number.	Burner, Number.	Size of Wick, Inches.	Price, With Plain Globe, Per Dozen.	Price, With Ruby, Green or Blue Globe, Per Dozen.	Price, With Green or Blue Globe, Per Dozen.	Price, With Ruby Globe, Per Dozen.
2063	0	0	1	$\frac{5}{8}$	9.50	12.50	.....	.....
2064	2	0	2	1–"B"	13.00	16.00	.....	.....
2065	1	0	1	$\frac{5}{8}$–"A"	13.50	16.50	.....	.....
2065	2	0	2	1–"B"	16.00	19.00	16.00	20.00
2066	39	.....	1	.....	11.50	.....	16.50	20.50
2067	39	.....	1	.....	12.00	.....	.....	.....

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TORCHES AND LAMPS.

FIG. 2058.

No. 26.

INSPECTORS' AND LOCOMOTIVE TORCHES

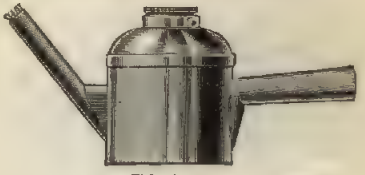

FIG. 2059.

No. 27.

Bronzed Steel Inspectors' and Locomotive Torches.

Number	26	27	28
Diameter.....inches	2	4½	5½
Height.....inches	15	4½	4½
Price, with Brass Cap and Tube.....per dozen	12.00	12.00	15.00

TIN FLUE LAMP.

FIG. 2060.

STEEL JACKET LAMP.

FIG. 2061.

SEAMLESS STEEL LAMP.

FIG. 2062.

Pieced Tin Flue Lamps.

Price, 4 inches long, 2½ inches wide, 1⅜ inches high.....per dozen	3.00

Bronzed Steel Jacket Lamps.

Number	20	20½	21
Diameter.....inches	3⅜	3¾	4⅛
Price.....per dozen	6.00	9.00	12.00

Seamless Bronzed Steel Lamps.

Number	22	23	24
Diameter.....inches	3¼	4	4⅞
Price.....per dozen	9.00	12.00	15.00

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TUBULAR LAMPS.

SQUARE.

FIG. 2073.
No. 6.

SQUARE.

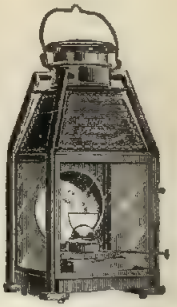

FIG. 2074.
No. 7.

SQUARE

FIG. 2075.
No. 8.

TRIANGULAR.

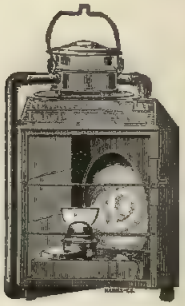

FIG. 2076.
No. 5.

Figure, Number.	Lamp, Number.	Burner, Number.	Wick, Inches.	Silvered Glass Reflector, Inches.	DIMENSIONS. INCHES.			Price, Per Dozen.
					Height,	Width.	Depth.	
2073	6	2	1 – "B"	6	16¾	8¾	7½	5.50
2074	7	7	1½ – "D"	8	22½	11½	10½	6.50
2075	8	8	1½ – "D"	10	24½	13½	11½	8.50
2076	5	5	1½ – "D"	10	.....	.....	.....	8.50

If Nos. 6, 7 and 8 are guarded add to list 1.00.
Prices do not include Chimneys.

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Louisville Ky.

LAMPS, ETC.

GLOBE TUBULAR STREET LAMP.

FIG. 2068.
No. 9.

SQUARE TUBULAR STREET LAMP.

FIG. 2069
No. 10.

TUBULAR SEARCHLIGHT.

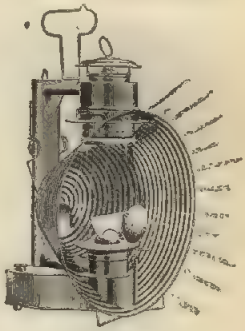

FIG. 2070.
No. 20.

TURNED WOOD POST.

6 FEET ABOUT GROUND, 2 FEET UNDER GROUND

FIG. 2071.

IRON BRACKET.

11½ or 24 Inches Long.

FIG. 2072.

Figure, Number.	Lamp, Number.	Globe, Number.	Burner, Number.	Wick, Inches	Reflector, Diameter. Inches.	Reflector, Depth. Inches.	Price. Japanned, Tin Fount, Bull's Eye Globe, Per Dozen.	Price, Tin Fount, Per Dozen.	Price, Wood Posts, Each.	Price, Brackets, Each.
.....	9	9	9	1½"D"	.....	.....	.....	6.00	.....	.....
.....	10	.....	10	1½"D"	.....	.....	.....	8.00	.....	.....
.....	20	0	2	1 "B"	12x7		30.00	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50	1.20

If Fig. 2070, No. 20, is furnished without Bull's Eye Globe deduct 50 cents.

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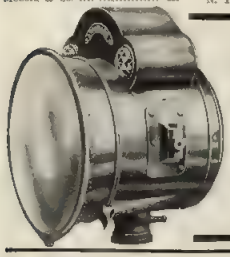

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STANDARD CARRIAGE LAMP CO.

43 & 45 So. Canal St., Chicago, Illinois.

Know the LUXURY of TRAVEL

Graham's Supplementary Springs for Hard-Riding Cars, and the Spring Bumpers for the Weak-Spring Ones.

THE GRAHAM CO.

108 Fulton St., N. Y. City

Auto Caps

For all seasons. Latest styles in leather, linen, cloth, silk and waterproof cloth.

Springfield Hat & Cap Co.

SPRINGFIELD, MASS.

(Largest Manufacturers of Auto Caps in America.

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ADJUSTABLE BENCH LEVELS.

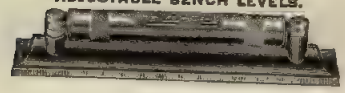


FIG. 2658.
4, 6 AND 8 INCH SIZES.

FIG. 2659.
12 INCH SIZE.
THE 18 INCH IS SIMILAR, BUT WITH DOUBLE PLUMB.

Adjustable Bench Levels, No. 95.

Length..... inches	4	6	8	12	18
Price, Plain Vial..... each	1.00	1.25	1.50	2.00	3.00

Nickel Plated Base, 25 cents extra.

Adjustable Bench Levels, No. 96.

Length..... inches	4	6	8	*12	†18
Price, with Ground and Graduated Vial.each	2.50	3.50	4.00	5.50	8.00

*With Plumb. † With Double Plumb. Nickel Plated Base, 25 cents extra.

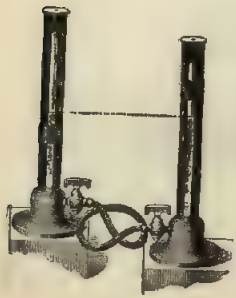


FIG. 2660.

Hydrostatic Levels.

For lining up shafting, finding levels at long distance, over obstructions or around corners. Giving the points out of level and showing the same in inches and fractions of an inch.

Prices include rubber tubing, couplings and case. No. 1 can be used with 25 feet of hose, No. 2 with 100 feet.

Number.....	1	2
Variation from Level Line.....inches	3½	6
Price.....each	10.00	15.00

Laib Co.
978
Louisville Ky

LEVELS.

PLUMB AND LEVEL.

FIG. 2661.

Plumbs and Levels, Arch Top Plate, Two Side Views, Polished and Tipped.

Price, No. 0, 24 to 30 inch	each	1.50
Price, No. 3, 26 to 30 inch	each	2.50
Price, No. 5, 26 to 30 inch, Triple Stock	each	4.00

POCKET LEVEL.

FIG. 2662.

BENCH LEVEL.

FIG. 2663.

Pocket and Bench Levels.

Length	inches	2½	3½
Price, Pocket Levels, Nickel Plated	each	.40	.50
Price, Bench Level	each	.....	.30

BENCH LEVELS WITH DOUBLE PLUMBS.

4 TO 12 INCH.

FIG. 2664.

18 TO 24 INCH.

FIG. 2665.

Bench Levels with Double Plumbs.

Length ..... inches	4	6	9	12	18	24
Price ..... each	1.35	1.50	1.65	1.75	2.00	2.25

Plumb Bobs

No. 87—Starrett Mercury

Made from solid steel bored and filled with mercury. Noteworthy features are their great weight in proportion to size, low center of gravity, small diameter, hardened and ground points, knurling on body, and the simple and effective device at top for fastening end of line after winding up. Each is provided with a braided silk line. Nickel plated.

Length, Inches	4	5	5½	6
Diameter, Inches	½	⅝	⅞	1
Weight, oz.	3½	6	12	16
Each	$1.00	1.50	2.00	2.50

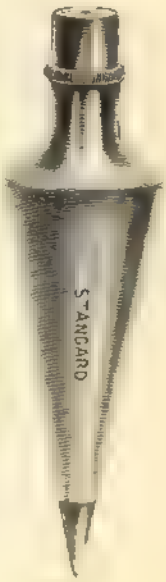
Nos. 50, 60 and 80

No. 7777—Brass

Cast from the best bronze, are turned accurately, have screw cap and hardened steel point.

Weight, Ounces	4	6	8	12	16
Per Doz.	$8.25	10.50	13.50	21.00	27.00

Each in a Tubular Wooden Box



No 7777

Nickel Plated Steel

Turned from solid steel bars in finely adjusted automatic screw machines. They are perfectly accurate and true in every respect. The finish, which is anti-rusting, consists first of a very heavy coat of copper, electroplated, which is then buffed up to a bright finish, and a heavy coat of nickel plate deposited over that, the surface of the nickel then being buffed up to a high polish.

The screws are turned in automatic screw machines from solid brass rods, and therefore will not rust. They are buffed up to a high polish.

The sharp points are carefully and thoroughly hardened.

No.	50	60	80
Length Over All, Inches	2 2/16	3¼	4
Per Doz.	$7.25	10 00	11.40

Nos. 0 and 00

Cast Iron, Japanned

No.	Per Doz.
2—Weight, 9½ oz.	$1.60
00—Weight, 18 oz.	4.00
0—Weight, 42 oz.	8.00

No. 0 Loose, No. 00 One-Half Doz., No. 2 One Doz. in a Box

Nos. 5B and 6B

Cast Brass

Steel Point, Screw Top

No.	Per Doz.
5B—Weight, 6 oz.	$7.50
6B—Weight, 11½ oz.	10.50

One-Half Doz. in a Box

Nos. 2 and 5

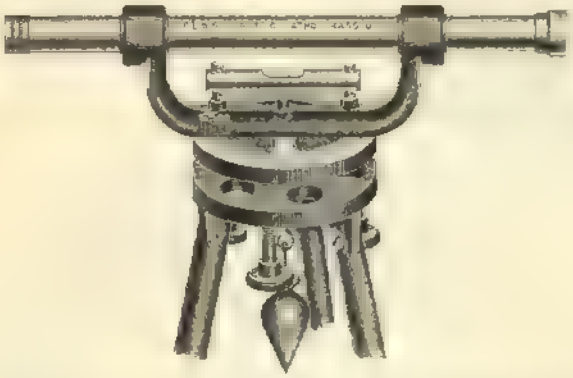
Stanley

Adjustable, Steel Point, Complete with Line.

No.	Per Doz
2—Bronze Metal	$25.20
5—Iron	12.00

One-Twelfth Doz. in a Box

Leveling Instrument



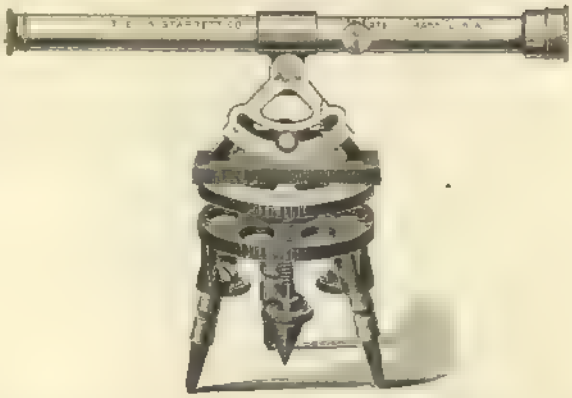
Designed for the use of Architects, Contractors, Carpenters, Millwrights, Masons, Surveyors, Etc.

Its lightness, simple construction, and extremely moderate price, combined with the wide range of work to which it can be applied, make it very desirable for all who have occasion to use such an instrument.

No.		Each
101A	Japanned Iron Body, Nickel Plated Tube	$12.50

Weight Packed in a Box, 13¼ Pounds

Transit



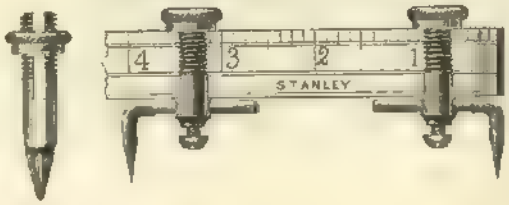
This instrument consists of a Tripod, to the head of which is connected an upper plate carrying a graduated arc and a level with plain sight tube.

It is designed for Architects, Carpenters, and Contractors, to lay out building sites and determine the levels; for Masons and Millwrights in the construction of foundations and for general use where a Transit is required. Made of the best of material and guaranteed.

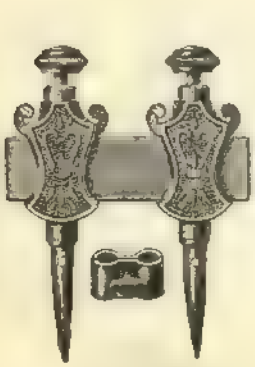
No.		Each
99F	With Long Telescope Legs and Ground Level Vial	$28.00

One in a Box, Weight 65 Pounds

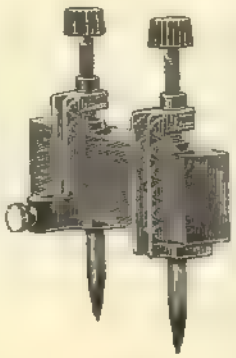
Trammel Points



No.		Per Doz. Sets
99	Set Consists of Two Brass Trammel Heads, with Movable Steel Points and One Head with Pencil Socket	$6.00



Nos. 1, 2 and 3

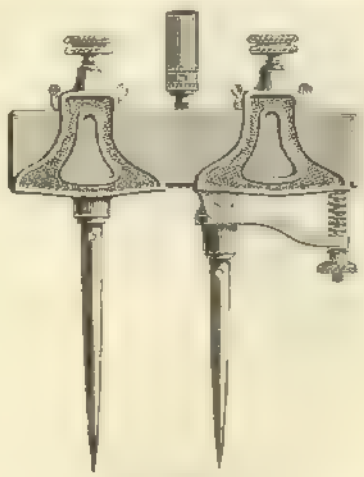


No. 4

Stanley

No.		Per Doz. Pairs
1	Bronze Metal, Steel Points, Small	$14 40
2	Bronze Metal, Steel Points, Medium	18.00
3	Bronze Metal, Steel Points Large	25 00
4	Iron, Nickel Plated	9 00

One Pair in a Box



Starretts

Bronze Metal with Forged Steel Points, Hardened, Either Point can be removed and the Pencil Socket put in its place.

No.		Per Pair
50A	With 3 in. Points, Adjustable	$2 50
50B	With 3 in Points, not Adjustable	1 50

Laib Co.
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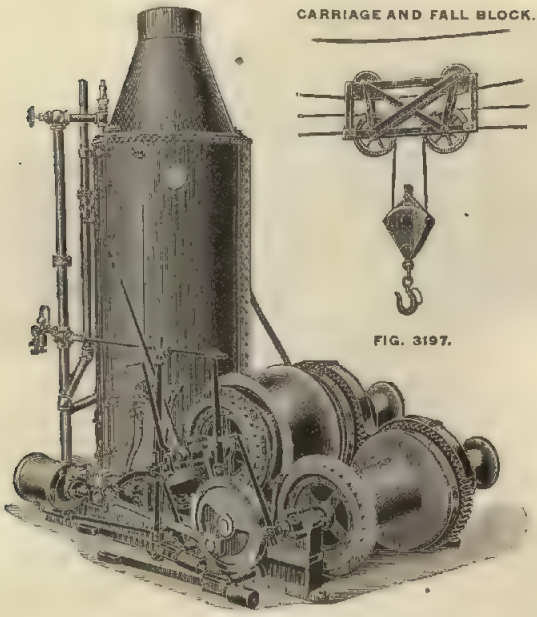
Louisville Ky

COMBINATION DERRICK AND CABLEWAY ENGINE.



CARRIAGE AND FALL BLOCK.

FIG. 3197.

FIG. 3196.

The above illustration shows a patent combination derrick and cableway engine. In operating the cableway with this engine the operator is able to hoist and convey simultaneously. This is something new in the cableway line.

It is a well-known fact that a contractor's plant depreciates more in storage than it does when in operation. This engine, when not in operation running a cableway, can be changed in a few minutes to a standard derrick engine by taking the jacket off the top drum, which is used for traction rope of cableway, and leaving the standard drum. To this engine can be attached the Patent Carriage and Fall Block.

Fig. 3197 shows the carriage and fall block and the way the rope is rove in the cableway, which hoists and conveys simultaneously.

It is a well-known fact that a given number of laborers can handle two-thirds more material into a skip 18 inches high than they will into a car four feet high. There are four reasons for this. First: The skip can always be moved close to the material to be handled. Second: The difference in height of the receptacles to be filled. Third: They are unable to handle as large pieces into the cars. Fourth: The pieces which are too large have to be sledged small enough for them to lift in. This, of course, shows a great advantage in favor of the cableway.

Laib Co.
1133
Louisville Ky.

STANDARD DOUBLE DRUM ELECTRIC HOISTS WITH RATCHET, PAWLS AND FOOT BRAKES.

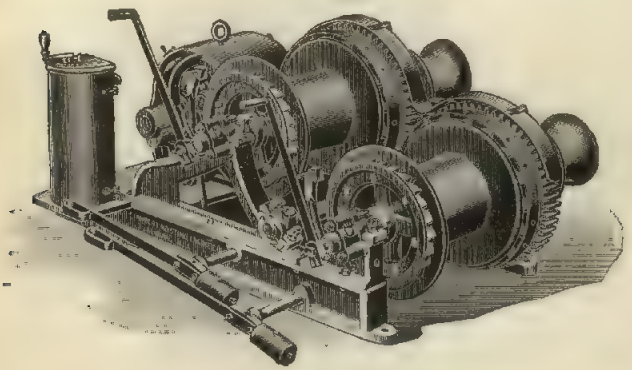


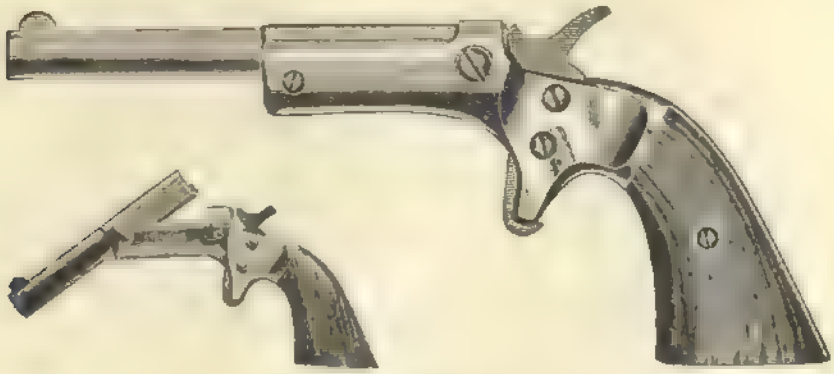
FIG. 3198.

Horse Power.	DRUMS.		Weight Hoisted on Single Line, Pounds.	WEIGHT, POUNDS.	
	Diameter Inches.	Length Between Flanges, Inches.		Single Drum.	Double Drum.
5	10	16	800	2700	3100
7½	12	16	1000	3300	3800
10	12	16	2000	3600	4200
15	14	16	2500	4500	5500
20	14	18	3500	5500	6500
25	14	24	4500	6500	7500
30	14	24	5000	6800	7800
35	16	28	6000	7300	8500
40	16	28	7000	9000	10500
50	16	34	8500	11000	13000
60	16	34	10000	15000	18000

Prices on application.

Pistols.

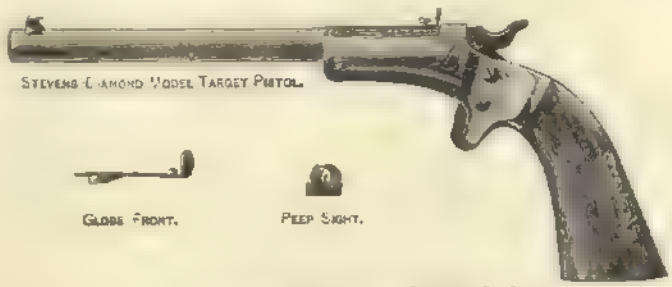
Stevens.



Stevens, Tip Up.

Tip Up Action, Plain Walnut Stock, Half Octagon Barrel.

	Each
No. 41—22 Caliber, Short Rim Fire Cartridges, 3½ In. Nickel Plated Barrel, Weight 7 oz., .	$2.50



Stevens, Diamond Model.

Long Plain Stock, Octagon Barrel to End of Frame.

	Each
No. 436S—22 Caliber, Long Rifle Rim Fire Cartridges, 6 In. Blued Barrel, Globe Front and Rear Peep Sights, Weight 10 oz.	$5.00
No. 436O 22 Caliber, Long Rifle Rim Fire Cartridges, 6 In. Blued Barrel, Open Sight . .	5.00
No. 431S 22 Caliber, Long Rifle Rim Fire Cartridges, 10 In. Blued Barrel, Globe Front and Rear Peep Sights, Weight 12 oz., ...	7.50
No. 431O—22 Caliber, Long Rifle Rim Fire Cartridges, 10 In. Blued Barrel, Open Sights, .	7.50

Stevens, Bicycle or Pocket.

Plain Walnut Stock, Octagon Barrel to End of Frame, Detachable Skeleton Nickel Plated Stock.

	Each
No. 40—22 Caliber, Long Rifle Rim Fire Cartridges, 10 In. Nickel Plated Barrel, Weight 2 lbs. .	$ 9.25
No. 40—22 Caliber, Long Rifle Rim Fire Cartridge, 12 In. Nickel Plated Barrel, Weight 2¼ lbs.,	10.00

WRENCHES —CONTINUED.

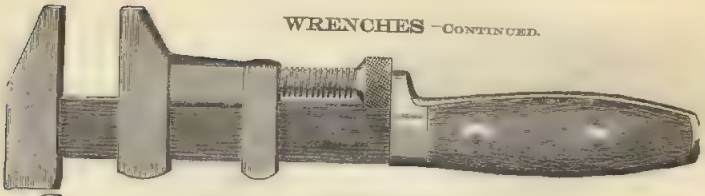


Fig. 1149

THE SOLID HANDLE WRENCH.

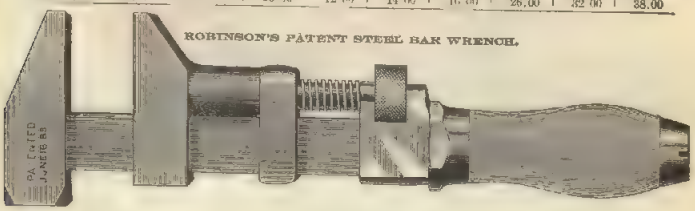
Fig. 1150.

ONE PIECE, SOLID STEEL FORGING,

BY ACTUAL TEST THE STRONGEST WRENCH MADE.

The head, bar, shoulder and handle frame being forged solid of one piece and case-hardened, insures uniform strength and overcomes the weak point in other screw wrenches, which are liable to break at a point on the bar opposite the knurled thumb screw.

Inches	6	8	10	12	15	18	21
Will open, inches	1	1¼	1⅝	2⅛	2¾	3⅛	4¼
Black, per dozen	$ 9 00	$10 00	$12 00	$14 00	$21 00	$30 00	$36 00
Bright, per dozen	10 00	12 00	14 00	16 00	26 00	32 00	38 00



ROBINSON'S PATENT STEEL BAR WRENCH.

Fig. 1151.

The strain upon the screw acts upon the bar instead of the ferrule. The screw has an independent thread, so arranged that the bar, screw and ferrule are doubly locked together, reducing friction and making the action easier. The bar is forged of steel thoroughly case hardened, and the wrench is warranted in every respect. In addition to the ordinary finishes of "Black" and "Bright," we furnish this wrench "Blued," making it most attractive in appearance, and a wrench of the highest grade.

Inches	6	8	10	12	15	18	21
Black, per dozen	$ 9 00	$10 00	$12 00	$14 00	$24 00	$30 00	$36 00
Bright, per dozen	10 00	12 00	14 00	16 00	26 00	32 00	38 00
Blued, per dozen	10 00	12 00	14 00	16 00	26 00	32 00	38 00

6, 8, 10 and 12-inch in wooden boxes of ½ dozen each. In cases of 6 dozen, each.
15-inch in wooden boxes of ⅓ dozen. In cases of 3 dozen.
18-inch in wooden boxes of ⅓ dozen. In cases of 2 dozen.
21-inch in wooden boxes of 1/11 dozen. In cases of 1 dozen.

WRENCHES—Continued.

STILLSON'S PATENT WRENCH.

FIG. 1152.

Length open in inches.	6	8	10	14	18	24	36	48
Takes from ..... in.	⅛ to ⅝	¼ to ⅞	⅛ to 1	1 to 1½	1¼ to 2	1¼ to 2½	2½ to 3½	1 to 5
Prices	$2 00	$2 00	$2 25	$3 00	$4 00	$6 00	$12 00	$18 00
Jaw	75	75	80	1 00	1 33	2 10	4 75	7 25
Frame	35	35	40	50	55	80	1 30	1 50
Steel Handle	95	95	1.10	1 45	2 10	3 20	6 40	9 25
Nut	.11	11	14	17	22	32	.55	95
Wood Handle	.16	16	.18	25	28	..	..	...

TRIMO PIPE WRENCH.

FIG. 1153

Length open in inches.	6	8	10	14	18	24	36	48
Takes from.....	⅛ in. wire to ¾ in. pipe	⅛ in. wire to ¾ in. pipe.	¼ in. wire to 1⅛ in. pipe	¼ in. wire to 1½ in. pipe.	¼ in. wire to 2 in. pipe.	¼ in. wire to 2½ in. pipe.	½ in. pipe to 3½ in. pipe	1 in. pipe to 5 in pipe
Price	$2 00	$2 00	$2 25	$3 00	$4 00	$6 00	$12 00	$18 00
Jaw	.67	.67	.75	1 00	1 33	2 00	4 00	6 00
Nut	.20	.20	.27	.35	.42	.50	.85	80
3. Inserted Jaw	.25	.25	.33	.60	.55	65	1 00	1 25
4. Frame	.25	.25	.33	.45	.55	65	75	1 00

BEMIS & CALL COMBINATION WRENCHES.

FIG. 1154

BRIGHT, WITH SHORT NUT.

10-inch, adjustable to pipe from ½ inch to 1 inch in diameter,..... Per dozen, $23 00
12 " " " " ½ " 1½ " " " 26 00
15 " " " " ½ " 2¼ " " " 37 00
18 " " " " ½ " 3 " " " 66 00

BLACK, SAME LIST.

FIG. 1155

BRIGHT, WITH LONG NUT.

10-inch, adjustable to pipe from ½ inch to 1 inch in diameter,..... Per dozen, $25 25
12 " " " " ½ " 1½ " " " 28 50
15 " " " " ½ " 2¼ " " " 40 50
18 " " " " ½ " 3 " " " 72 00

BLACK, SAME LIST.

STRAINER MILK PAILS.

In our high grade milk pails the best quality tinned steel is used. The plates are specially prepared and the coating of tin applied is as thick as will adhere to the metal. Our pails are soldered inside and out. The breasts and stamped parts are made in the strongest shapes and neatest forms. The pails are reinforced with heavy bands and hoops at the bottom. Malleable handles are riveted on and the construction, workmanship and materials are in every way the best.

12 qt. Strainer Pails . . . Our net price, each, $1.50
14 " " " " " " " " 1.50

STODDARD BARREL CHURN.

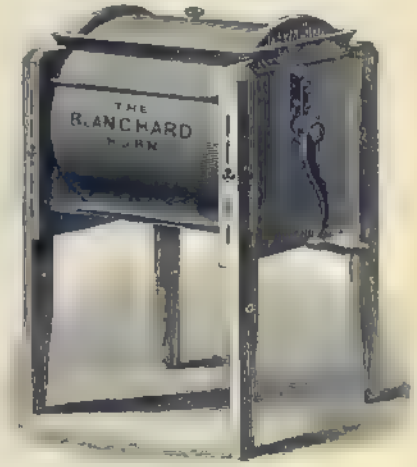
Dairy Sizes.

			Mfrs. Price.	Our net Price.
No. 1.	10 gal., churns from 1 to 4 gal. cream,		$8.00	$7.00
" 2.	15 " " " 2 " 7 " "		9.00	8.00
" 3	20 " " " 3 " 9 " "		10.00	9.00
" 4	25 " " " 4 " 12 " "		11.00	10.75
" 5.	35 " " " 5 " 16 " "		14.00	12.50
" 5½.	45 " " " 5 " 20 " "		17.00	15.00
" 6.	60 " " " 6 " 28 " "		20.00	18.00

Pulleys for power, extra.

Twelve inch iron pulley including extra heavy frame . 3.00
Cone pulley attachment for dog power . . 3.00

BLANCHARD CHURN.



Family Sizes.

			Mfrs. Price.	Our net Price.
No. 3.	Will churn up to 2 gal. of cream .		$6.00	$5.00
" 4.	" " 4 " " .		7.00	6.00
" 5.	" " 8 " " .		8.00	7.00
" 6.	" " 12 " " .		10.00	9.00
* " 7	" " 16 " " .		12.00	11.00

Pulley for power, 14-in. diameter, 3-in. face, will fit any size churn (instead of crank) 1.50

* This size has crank on each end.

THE LIGHTNING CHURN.

		Mfrs Price	Our net Price
No. 0	Will churn 2 gals	$3 00	$2 50
" 1	" 3 "	3 50	3 00
" 2	" 4 "	4 00	3 50
" 3	" 5 "	4 50	4 00

CYLINDER CHURN.

		Mfrs. Price.	Our net Price
No. 0.	1¼ gals., each	$2 25	$1.50
" 1.	2¾ " "	2.50	1.75
" 2.	4 " "	3.00	2.25
" 3.	7 " "	3.50	2.75
" 4.	10½ " "	4.00	3.00
" 5.	15 " "	4.50	3.25

IMPROVED BABCOCK MILK TESTER.

The best apparatus on the market with which to use Dr. Babcock's test for determining the butter-fat in skim milk, buttermilk, whole milk and cream.

Has latest Improved Cast Iron Body and Cover, Removable Malleable Iron Bottle Head, Seamless Brass Swinging Pockets and Ball Bearings.

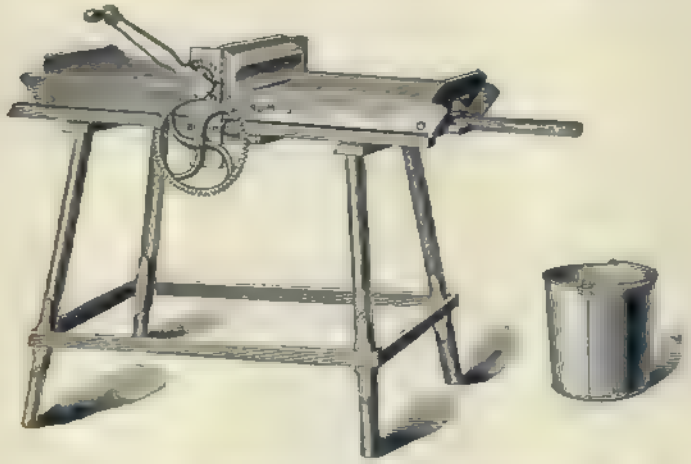
The gears are cut out of solid metal, making them almost noiseless in operation. A great improvement. In fact this machine combines all the essentials of a perfect Babcock Tester. It is accurate, efficient, simple, and durable.

Outfit consists of a full set of regular Babcock milk bottles, pipettes, acid measures, acid sufficient for 50 to 100 tests, and directions for manipulating.

Send for Fully Illustrated Special Babcock Tester Pamphlet.

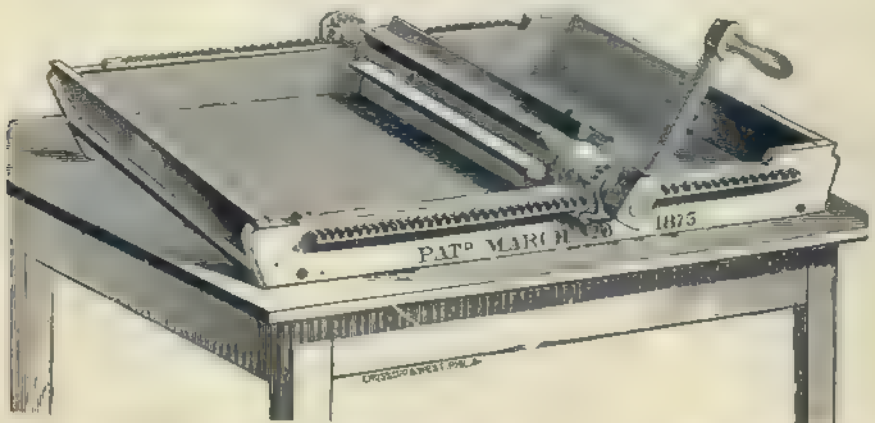
[illegible]	tle Tester with complete outfit	.	.	.	Our net price, each,	$8.00
6	"	"	"	"	"	.	.	.	"	"	9.00
8	"	"	"	"	"	.	.	.	"	"	10.00
10	"	"	"	"	"	.	.	.	"	"	12.00
12	"	"	"	"	"	.	.	.	"	"	14.00

THE WATERS BUTTER WORKERS.

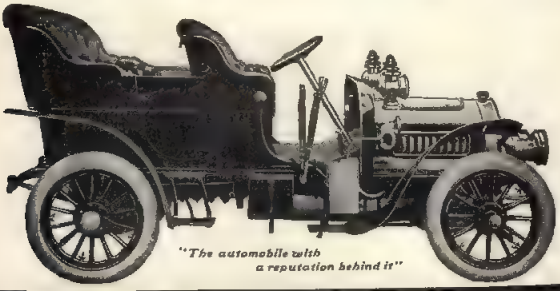


No	0	length of tray,	27	in.,	width of tray,	14	in.,	capacity,	1 to 15	lbs.,	No. of cows,	1 to 4	Mfrs. price,	$7	00	Our net price,	$	6	00
"	1	"	"	36	"	"	"	15	"	"	5 to 30	"	"	"	4 to 8	"	"	8.00	"	"	"	7.00
"	2	"	"	36	"	"	"	18	"	"	5 to 40	"	"	"	8 to 12	"	"	9.00	"	"	"	8.00
"	3	"	"	39	"	"	"	20	"	"	5 to 50	"	"	"	12 to 18	"	"	10.00	"	"	"	9.00
"	4	"	"	48	"	"	"	22	"	"	10 to 75	"	"	"	18 to 30	"	"	12.00	"	"	"	10.50

REID'S PATENT BUTTER WORKER.



No	1	size,	23 x 36	in.,	2½	in. deep,	inside;	capacity,	50	lbs.,	weight,	45	lbs.	.	.	.	.	Mfrs. price,	$10	00	Our net price,	$8	00
"	2	"	20 x 36	"	2½	"	"	"	30	"	"	29	"	.	.	.	.	"	8.00	"	"	6.50
"	3	"	17 x 27	"	2½	"	"	"	20	"	"	25	"	.	.	.	.	"	7 00	"	"	5.50
"	4	"	14 x 23	"	2½	"	"	"	10	"	"	20	"	.	.	.	.	"	6.00	"	"	5.00



STUDEBAKER

No. 9503 4-Cylinder Gasoline Car

Mechanically, No. 9503 is strictly a common sense car. In addition to its unsurpassed methods of ignition and lubrication, already described,

Its Rear Axle Construction

is the acme of practical engineering. This axle drives the wheels, but does not carry the weight of the car. The rear wheels revolve on the end of the tubular housing of the axle proper. By this common sense division of labor, lightness and strength is acquired. While this axle may be taken apart in eight minutes, no case has yet occurred when this has been necessary.

The combination of light weight, ample power, ball bearings and perfect lubrication in Model 9503, make it the ideal touring car.

SEND FOR CATALOG

STUDEBAKER AUTOMOBILE CO.

SOUTH BEND, INDIANA

Member Association Licensed Automobile Manufacturers

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New York City, Broadway and 7th Ave., at 48th St
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Portland, Ore., 330-336 E. Morrison St.
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AS A RESULT OF GOOD WORKMANSHIP, our 1905 cars gave the best of satisfaction and we had no trouble in selling our output. Our agents are all satisfied and made a good record selling our cars. We have room for a few more live agents, as we have increased our output to a large extent.

Our 1905 cars were winners as to speed, hill climbing and beauty. We had one agent say to us "You have too much power." This may be so, but you know that power is what you want in an automobile.

For 1906, we have the same engine and frame construction, which has given the best of satisfaction and these parts will not be changed, only the wheel base will be 96 inches, being 6 inches longer than last season. We have a new body this year and when it comes to style, the $2500.00 or $3000.00 cars do not equal it.

The new car has been tested out under the most difficult conditions. We have driven it through mud and over hills, and after days and weeks of the hardest tests, it was sent over 50 miles through the worst kind of mud and came through without an adjustment and made the run in 2 hours and 8 minutes with four passengers.

The Auburn, Model C, is guaranteed to climb any hill on the high speed that any other car will with the same size engine.

The Auburn has a 20 H. P. engine with speed from 3 to 35 miles an hour. Write us now for terms and agency for 1906.

AUBURN AUTOMOBILE CO.

Auburn, Indiana

Brass Case, with Screw Cap and Brass Cap to Needle, Nickel and Soap Stone Bottom

		Per Dozen
No. 1924	1½ inch Diam.	$11 00
No. 1927	1¾ inch Diam...	13 75
No. 1928	2 inch Diam...	12 00

Brass Case, Nickel Plated Jewel Needle, Full Division and Soap Stone Bottom

		Per Dozen
No. 1929	1½ inch Diam	$15 00
No. 1930	1¾ inch Diam	15 00
No. 1931	2 inch Diam	16 00

Brass Case, Metal Dial, Brass Cap to Screw and Soap Stone Bottom

		Per Dozen
No. 1932	1½ inch Diam	$8 00
No. 1933	1¾ inch Diam	8 40
No. 1934	2 inch Diam	8 80

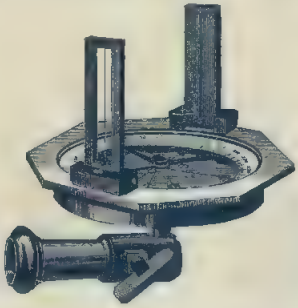
Brass Case, Nickel Metal Dial, Jewel Needle, Full Division and Soap Stone Bottom

		Per Dozen
No. 1935	1½ inch Diam	$12 00
No. 1936	1¾ inch Diam	12 50
No. 1937	2 inch Diam	13 00

SURVEYORS' COMPASSES.

Brass Case, Full Division Metal Dial, Jewel Cap and Soap Stone Bottom

No. 1938	1¼ inch Diameter, in Case	$18 00
No. 1939	1¾ inch Diameter, per dozen	39 00
No. 1940	2 inch Diameter, per dozen	20 00



Brass Compasses are now made with Round Rim instead of Octagon Rim, as shown

No. 1945. Each, $9.50

2½ Inch Needle, Folding Sights, Ball Socket and Staff Mountings, in Case

No. 1946. Each, $11.00

2½ Inch Jewel Needle, Folding Sights, Ball Socket and Staff Mountings, in Case

No. 1947. Each, $15.00

4 Inch Jewel Needle, Folding Sights, Ball Socket and Staff Mountings, in Case

No. 1948. Each, $20.00

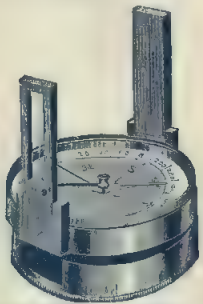
4 Inch Jewel Needle, Folding Sights, Ball Socket with Rack Motion and Staff Mountings, in Case

No. 1949. Each, $5.00

Tripod, with Leveling Staff Head

No. 1950. Each, $10.00

Tripod with Brass Head



Brass Case, Nickel Metal Dial, Jewel Needle, Sights and Ball Socket off Center

No. 1943	2½ inch Diameter	each $6 00
No. 1944	3 inch Diameter	each 9 50

Nickel Plated Case, Jewel Needle

No. 1941	1¾ inch Diameter	each $3 00
No. 1942	2 inch Diameter	each 4 00

No. 1951. Each, $15.00

Fine Dip Needle Compass. For Prospecting for Minerals, Metal Case, Glass Sides, 4 Inch Needle.

No. 1952. Each, $1 00

2¾ Inch Wood Case with Cover, Metal Dial, Jewel Needle, Agate Cap, Soap Stone Bottom

No. 1953. Each, $1.80

Same as Above, but Full Division

The Cleveland Wire Spring Company

Cleveland, Ohio

Manufacturers
High-Grade

Oil Tempered Valve and Machinery Springs

Seat Constructions

Rest Your Tires

with a "SPRINGFIELD" LIFT

You turn the cranks and the four wheels will rise 7 inches off the floor

Showing lift in position to receive car. Actual lifting capacity 3500 pounds. Write for descriptive circular and price.

The Shawver Co.

SPRINGFIELD

OHIO

E. J. DAY & CO., Pacific Coast Agts, San Francisco

Are You Quite Sure About Your 1906 Timers?

WHY NOT PROFIT BY OUR EXPERIENCE.

We have spent time, money and brain tissue developing and perfecting a primary contact which is positive at all speeds and of the highest physical endurance. The result is our "Reciprocating Contact," consisting of nickel steel roller and tool steel plunger, the essential features of our 1906 models.

It is worth your while to investigate. DO IT NOW.

C. L. ALTEMUS & CO.

THE BOURSE PHILADELPHIA, PA.

Suitable for any size engine.

Geer Blue Bird Frame

Specifications—Distance between wheel centers, 51 inches. Height, frames, 20, 22, 24, 26 inches. Tubing, 16 ga. in curved bar, 14 inch balance. Forks trussed 1/2 stem, takes 7/8 bar. Stem, 10 ga. Sides, 1 1/4x14 ga. Head fittings, turned. Hanger, 8 piece export style. Cranks, cotter pin, style flat. Seat post, L, or T style. Head, special re-inforced. Bracket Hanger, off set for belt. Seat post hanger off set for belt. Gasoline tank, copper, holds 1 gal. Lubricating oil tank, holds 1 pint. Battery box, galvanized iron, re-inforced.

Price, frame only, $35.00. Price, forks, $5.00. Price, frame forks and tanks, $45.00. Price, wheels $17.00. Discount to dealers.

HARRY R. GEER CO., 1016 Pine St., St. Louis, Mo.

150 page motor cycle supply catalogue and second hand motor cycle list mailed upon request

THE "Exide" BATTERY

FOR *ELECTRIC VEHICLES* MANUFACTURED BY

THE ELECTRIC STORAGE BATTERY CO.

PHILADELPHIA

The "Exide" Sparking Battery. "Exide" Depots in Principal Cities

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Boston, 60 State St.
Chicago, Marquette Building
St. Louis, Wainwright Building
Cleveland, Citizens' Building
San Francisco, Rialto Building
Canada, The Canadian General Electric Co., Ltd., Toronto

SYNNESTVEDT MACHINE COMPANY

PITTSBURG, PA.

Manufacturers of

Electric Vehicles

Delivery Wagons Trucks

Stanhopes Surreys

Busses

EASTERN BRANCH—1005 Drexel Bldg., Philadelphia
Commercial Automobile Co., Distributers
1338 Michigan Ave., Chicago, Ill.

MORTGAGE SALE

New Bullock Ignitors--1903 Model

Price, $2.95—Regularly $10.00 Price, $2.95 Regularly $10.00

Finest Ignition for Automobiles, Motorboats, Gas Engines, Motorcycles. Does away with a coil, vibrator and all adjusting, and very simple.

This model is as good as any later model of its kind and is guaranteed for one year. It operates on dry cells or magneto, the principle being when a circuit is made the magnet lifts a rod which separates two heavy platinum points, breaking the circuit, causing a hot spark. The mentioned article is the only ignition system, being economical and simple, and you should not miss this sale. When ordering give thread pipe or metric, short or long shank. Will send goods C. O. D. or upon receipt of Money Order and duplicate parts if requested, free.

W. M. ZORN, 508 Sterling Avenue, CLEVELAND, O.

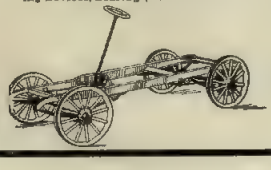
NOTE: If efficiency of above article is in doubt, order only one or two and if satisfied write or telegraph immediately for the others, as delay may be costly

AUTOMOBILE RUNNING GEARS

WITH PRESSED STEEL OR ANGLE IRON FRAMES

We Build all Styles

Also Bodies, Wheels, Gear or Chain Drive Axles, Steering Devices, Bearings, etc.



We Make all Kinds of Bodies

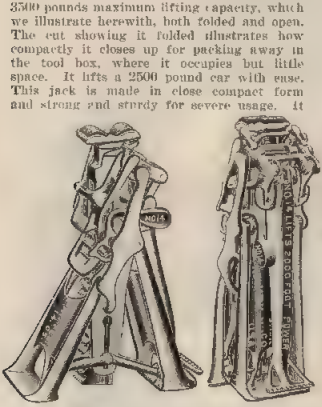
Get our Catalogue and best prices at once.

H. F. BORBEIN & CO.,

2108 2110 N. 9th St., St. Louis, Mo.

Searls No 14 Jack

The 1906 line of Searls Automobile Jacks made by Jersey Brake Co., Green and Columbia Streets, Newark, N. J., includes one of 3500 pounds maximum lifting capacity, which we illustrate herewith, both folded and open. The cut showing it folded illustrates how compactly it closes up for packing away in the tool box, where it occupies but little space. It lifts a 2500 pound car with ease. This jack is made in close compact form and strong and sturdy for severe usage. It



Searls Jack No. 14, open and closed.

has solid oak tan short lap belt leather axle rest that cannot mar any part of an automobile in practical use. It embodies all the practical advantages that endless studs and long experience have evolved. It lifts wheels from 22 to 42 inches and is convenient where low axles and steering bars are used.

This or any of their jacks will be delivered upon application free to any responsible party for inspection and return.

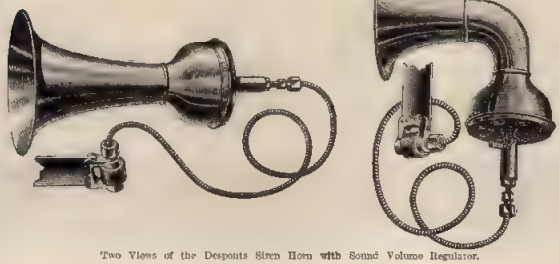
"Western" Steel Castings

The Western Malleable Steel Co., Detroit, Mich., have erected four buildings, which includes a 75x150 ft. foundry, for the production of light steel castings for the automobile and pneumatic tool trade. The plant is equipped with three 25 H. P. motors, one cupola five tons per hour capacity, one steel furnace with fifteen tons per day capacity, and an annealing furnace with a capacity of twenty tons per day.

The malleable steel, made from foreign pig iron and refined by them, is specially adapted for parts in automobiles where it is impracticable to make a drop forging, and also where malleable iron is of insufficient strength. The castings are all free from blow holes and shrinkages and are smooth and true to pattern. The imported pig iron is also molded, by the French method, into grey iron cylinders, pistons, and piston rings, insuring loss against shrinkage, blow holes and rough surfaces, overcoming the many difficulties that the foundry has not been able to overcome with ordinary methods.

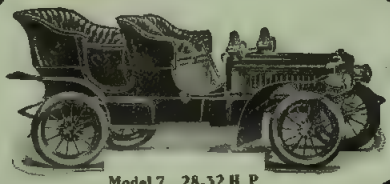
The "Desponts" Siren Horn

We show herewith the "Desponts" Siren horn for motor cars and boats. This horn is a foreign product, imported by Leon Rubay, of 140 W. 38th St., New York, who controls the sale of this device in the United States. The "Desponts" horn is operated by a roller which receives its motion from the flywheel of the engine and transmits the same to the revolving sound-producing portion of the horn through a flexible shaft. The roller is brought into contact with the flywheel by means of a pedal or lever which can be placed wherever desired. When the pedal or lever is released the roller is drawn out of contact with the flywheel by means of a steel plate, which acts as a spring and also carries the roller. This horn is provided with a regulating device to vary the intensity of the noise produced. This regulator consists of a shutter which is operated by a small lever which can be connected to a lever and sector on the steering column. By means of this device the volume of noise can be throttled down to less than that of an ordinary horn or allowed to pour forth at such a pitch as can be heard several miles away.



Two Views of the Desponts Siren Horn with Sound Volume Regulator.

THE LAMBERT



Model 7. 28-32 H. P.
$2000

MODEL 7—As above illustrated	. . . . .	$2000
MODEL 6—With detachable side entrance tonneau	.	1350
MODEL 5—Side entrance with tonneau	. . . . .	1200
MODEL 4—Light touring car	. . . . .	1000
MODEL 2—Combination touring car	. . . . .	1000

OUR TRANSMISSION

Get specification on our . . . . **16 H. P. Runabout**

A 1906 Model the best on the market. Also write for prices on our Commercial Vehicles.

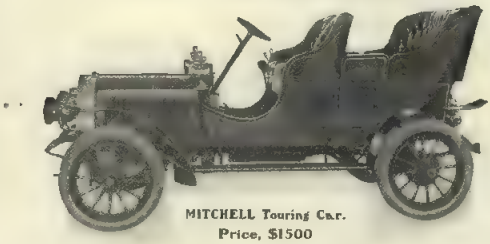
The Buckeye Mfg. Co.

ANDERSON, IND.

Members American Motor Car Manufacturers' Association, Chicago.

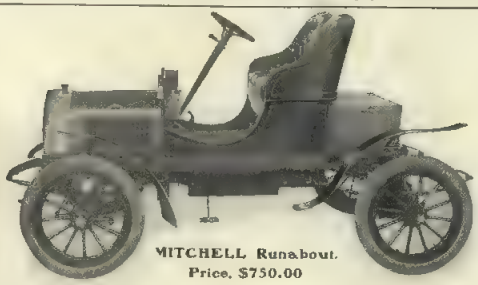
Are you looking for your money's worth? You will find it in

THE MITCHELL



MITCHELL Touring Car.
Price, $1500

The MITCHELL TOURING CAR is an extraordinary automobile at an extraordinary price. No where else do you get such sterling value. It is powerful,—having one H. P. for every 35 lbs. of weight,—takes hills with ease, and has more speed than is ever required for road work; simple in design, all working parts being readily accessible, and smart in appearance, great care having been given to the details of finish. Get a demonstration. It will convince you that we make "the car you ought to have at the price you ought to pay."



MITCHELL Runabout.
Price, $750.00

This light car is radically different from all other American-made runabouts. It has the same design and all the good features of the most expensive large cars at one-fourth the price. It has a two cylinder vertical engine mounted in front, a mechanical oiler, sliding gear transmission, irreversible steering gear and a **pressed steel frame.** In no other runabout will you find half the good features that are contained in the MITCHELL.

Write for full details regarding these two models if you want to get an adequate return for your money.

MITCHELL MOTOR CAR CO., **Racine, Wis.**

Members American Motor Car Manufacturers' Association, Chicago.

For the Theatre or Evening Use

Rambler

Surrey, Type Two, $1,650.00

This car, handsomely finished, seating five people, with large roomy tonneau, well protected from storms by canopy top, plate glass front and side curtains, is built for solid comfort, and will surmount all ordinary grades without the use of second speed.

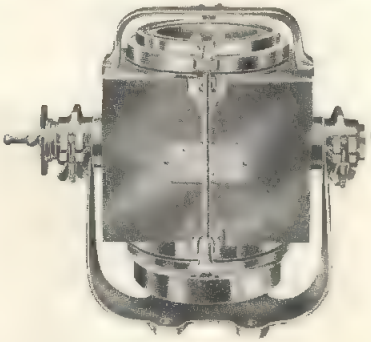
A practical demonstration at any Rambler agency of Rambler ease of control, simplicity and reliability of mechanism, slight cost of fuel and maintenance, will prove to you that the Rambler is the car for you to buy.

Surrey, Type Two, illustrated above, complete with Canopy Top, lamps, horn, tools etc., $1,650.00. Write for catalogue describing six different models, from $850.00 to $3,000.00.

Thos. B. Jeffery & Co., Main Office and Factory, Kenosha, Wis. U. S. A.

Branches:

Boston, 145 Columbus Ave.
Philadelphia, 242 N. Broad St.
Milwaukee, 457-459 Broadway.
Chicago, 302-304 Wabash Ave.
New York Agency, 134 W. 38th St.
Agencies in other leading cities.



The Neverout

TRADE MARK

Patent

Safety Gas Producer

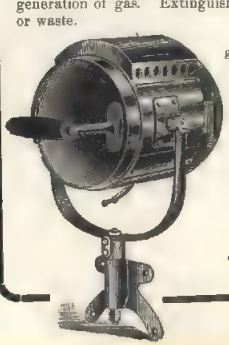
for 1906 is now ready

A still further development of the ingenious model which created such a stir last year.

Many improvements have been made and today the superiority of the *Neverout Safety Gas Producer* over other lighting systems is more marked than ever before.

The gas is of the driest and purest quality, and costs much less than when supplied by any other method—less than ½ cent per hour.

Always ready for instant use and one movement of the hand starts the generation of gas. Extinguished at any time without after-generation or odor or waste.



This simple, efficient gas producer is bound to grow as famous as

The Neverout

Mirror Lens Searchlight

Money back if not satisfactory
Write for free illustrated catalogue.

ROSE MANUFACTURING CO.

Largest Searchlight Factory in the World.

911 Arch Street **Philadelphia**

The Marmon

"A MECHANICAL MASTERPIECE"

Front Wheel Raised Over a Foot

Rough Road Reasons

The purpose of this picture is not to show that the Marmon can be photographed on a rough road, but to show why the Marmon can be run at good speed over rough roads without incurring the ruinous strain on the mechanism and the vicious jolting to the passengers which is inevitable in any other car.

That something has been radically wrong in automobile construction has probably occurred to anyone that has ever been in an automobile when it smashed into a good sized rock or into a hole in a bad pavement, felt the jolt and heard the mechanism groan as it was violently wrenched and twisted.

The above illustration does its own talking. The front wheel has been raised over a foot, without tilting the body. Try this on any other car.

In all other automobiles the power plant is attached to the body frame and the body frame is suspended at four points on the axles. Both axles are rigid, so that except for the springs, this construction would enjoy no advantage over that of a log-wagon. But in an automobile, weight must be considered and its costly mechanism must be protected. This unnatural and unyielding construction means ruinous binding and twisting strain in some part of the mechanism all the time. The rougher the road, the worse the strain.

The elasticity of the Marmon is such that no matter how rough the road, the mechanism is free from such strains and its passengers enjoy the very luxury of motion.

This elasticity is supplemented by springs, but is **primarily** due to an exclusive **patented** Marmon feature

Double Three-Point Suspension

Cast aluminum body on one frame, power plant on another frame, **each frame** suspended on three **pivotal** points. No matter how these frames are tilted, the power plant, straight and rigid driving shaft and rear axle are maintained in alignment. This means perfect power transmission. Means fewer parts, simpler parts, and less wear on all parts, tires included. This is one feature of "A Mechanical Masterpiece." It has other exclusive patented features of apparent superiority. Original in design, a departure for the better. Our Booklet No. 6 describes it fully, and is yours for the asking.

Four Cylinders--Air Cooled

AGENTS: We assert that the Marmon has more good talking points—points that appeal instantly and forcefully to buyers—than any other car. High grade in every detail of construction, superb in appearance, there is no better proposition for agents who are in touch with the better class of trade.

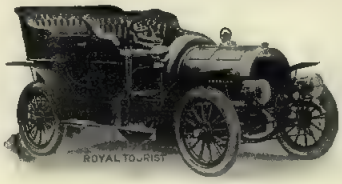
NORDYKE & MARMON CO.

ESTABLISHED 1851

INDIANAPOLIS INDIANA

Member American Motor Car Manufacturers' Association, Chicago

Regardin' Our Fine Performance in the Vanderbilt Cup Trials



Some people have expressed surprise at our ability to beat out special built racing machines with our regular stock motor car. Those of you who own Royals, or have had a ride in a Royal car, know why it was so easy for us to come in third in the race.

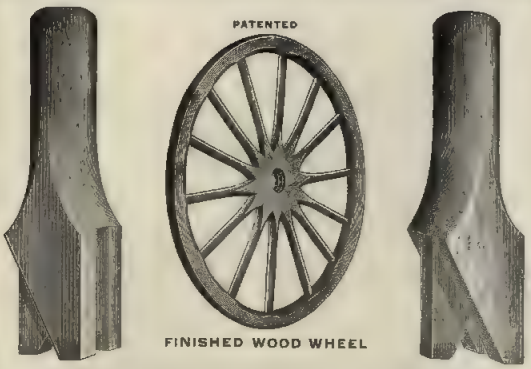
The Royal Tourist is built to keep on movin'—on the tour—in the race—in the city streets—she always keeps pegging along without noise, trouble or annoyance. We are advertised by our customers. Ask one.

ROYAL

The Royal Motor Car Co.

CLEVELAND, OHIO

AGENTS: C. A. Duerr & Co., 58th and Broadway, New York. G. J. Dunham, 182 Columbus Ave., Boston. The McDuffee Automobile Co., 1449 Michigan Ave., Chicago. G. W. Caplin, 424 South Fifth St., Minneapolis. Automobile Supply Co., Limited, 24 Temperance St., Toronto. Motor Shop, 317 N. Broad St., Philadelphia. Westminster Automobile Co., 4396 Olive St., St. Louis.



Why be Satisfied With the Old Style?

"The Schwarz Wheel"

is scientifically correct and practically perfect. It is the strongest artillery wheel in the world. There is but one thing required to convince you that the **Schwarz Wheel** is superior to any other kind on the market, and that is investigation. For mutually profitable reasons we hope that you will either get the opinion of those who have used the **Schwarz Wheel** or make a test for yourself.

THE CONSTRUCTION OF THIS WHEEL INSURES ITS BEING PERFECTLY TRUE

The spokes are put together without a hub, under pressure, the spokes interlocking one another. Being the same width in the center of the hub as on the outside, they cannot loosen. For the same reason the tenon of this spoke is longer than that of any other, permitting the use of a hub of a smaller diameter, yet still retaining the same spoke support.

When hub flanges are bolted on they have the same appearance as any other artillery wheel

THE SCHWARZ WHEEL COMPANY

Office, Mint Arcade Building, Juniper & Chestnut Sts., Philadelphia

Factory, 20th and Glenwood Ave.

THE SUNSHINE LAWN SPRINKLER.

Ball bearings. Revolves with ease and rapidity. Sprinkles large or small areas equally well. Nothing complicated to get out of order. Latest and best. Warranted to give satisfaction. Works well on low pressures.

Sunshine Sprinklers . . . . . Mfrs. price, per doz., $15.00 Our net price, each, $1.00

NICKEL PLATED LAWN SPRINKLER.

The nickel plated lawn sprinkler is an old favorite. It stands about four feet high and produces with an ordinary water pressure beautiful fountain-like effects.

They are made in a very substantial manner, tops and arms are carefully and heavily nickel plated the standards and bases are neatly painted and bronzed.

4 arm, perforated top	Mfrs. price, each,	$7.00	Our net price, each, $4.00
8 " ball top	" "	8.00	" " 4.50
Perforated or ball tops, separate	" "	1.00	" " .75

ÆTNA LAWN SPRINKLER.

One of the most attractive sprinklers on the lawn. 24 inches high.

Ætna Sprinkler . . . . . Mfrs. price, each, $2.00 Our net price, each, $1.75

GARDEN CITY LAWN SPRINKLER.

Distributes more water than any other form of sprinkler. 12 inches high.

Garden City Sprinkler . . . . . Mfrs. price, each, $1.25 Our net price, each, $1.00

THE "TWIN-COMET" LAWN SPRINKLER.

The globe, or body, of the sprinkler is made in two parts, and by means of the swiftly revolving arms, and intermediate gears, the upper half is made to revolve slowly, carrying the hose nozzle, from which a full stream of water is thrown far out beyond the sprinkle of the arms, thereby covering a larger space than any other stationary sprinkler. Height, 17 inches; weight, 6 lbs.

Mfrs. price, per doz. . . . . $60.00 Our net price, each, ... $5.00

THE "BOSS" SPRAY HOSE PIPE.

This pipe will throw a perfect stream or the finest mist. It delivers more water by spray than solid stream. The spray comes directly through the pipe, thus avoiding strain on hose. It has no packing nuts to work loose and leak. It is made in best possible manner, and warranted.

Mfrs. price, per doz. . . . . $6.00 Our net price, each $0.50

By mail add for postage, 10 cents each.

NEW BOSTON SPRAY NOZZLE.

New Boston.

Old Style.

This nozzle in addition to a remarkably solid stream, will throw two distinct sprays, one a fine mist, and the other a full, gentle spray, which while thoroughly watering the ground, does not in the least disturb the plants, grass or seeds, giving the effect of a spring shower. The latter feature makes this pipe of inestimable value to gardeners.

Mfrs. price, per doz. . . . . $6.00 Our net price, each $0.50

By mail add for postage, 10 cents each.

NEPTUNE HOSE NOZZLES.

Made of hard rubber with soft rubber tip. By the pressure of the finger on the tip it makes a spray nozzle particularly adapted to florists' use.

Mfrs. price, per doz. . . . . $5.00 Our net price, each $0.40

By mail add for postage, 5 cents each.

FAIRY SPRAY PIPE.

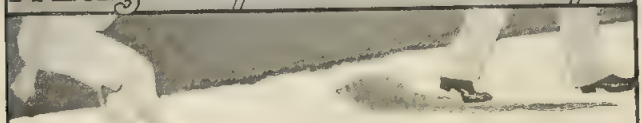
No. 272.

The best form of combination pipe throwing either a straight stream or spray.

Mfrs. price, per doz. . . . . $7.50. Our net price, each $0.00

By mail add for postage, 10 cents each.

A Long Jump or Two Short Steps



Find an Elmore agent or user and you'll find a two-cycle enthusiast. The fame of the two-cycle idea has spread this season from ocean to ocean. Its principle—a continuous application of power—is irresistible and indisputable; and that principle is put into practice with absolutely perfect success in

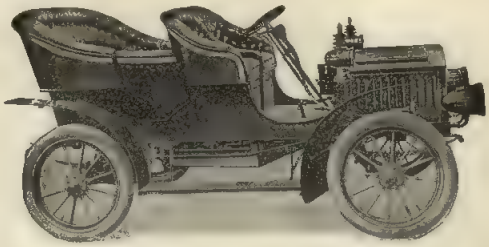
THE TWO-CYCLE ELMORE

Picture to yourself two men—one trying to cover the ground in long, hard jumps, the other forging ahead in quick, short steps. The first is the four-cycle—and bound to lose against the two-cycle with its even, steady gait. We have a book called "A Long Jump or Two Short Steps," which explains this in A B C style.

Better still, we have a record of victories in every test worthy of the name. Better still, we have the every-day testimony of thousands of users to which you can easily refer.

The Elmore two-cycle engine is no longer the "coming" engine—it is here. You'd better join the army of the enthusiastic converts. Ask your agent or write to us.

REPRESENTATIVES: A. E. Ranney & Co., New York; Gawthrop & Wister, Philadelphia; Seneca Auto Co., Rochester; Young & Miller, Detroit; Hein & Casper, Milwaukee; W. W. Leathers Co., St. Louis; Lowry Mfg. Co., San Antonio; J. A. Rossesteel, Los Angeles.



The ELMORE MFG. CO., Amanda St., Clyde, Ohio

THERE'S ONLY ONE MOTORCYCLE
built, with a diamond loop frame and twin forks.
Remember the name
THE "WAGNER"
Descriptive catalogue, and agency terms on application
THE WAGNER MOTOR CYCLE CO.
327 St. Peter St. St. Paul, Minn.
Geo. V Lyons, N. Y State Agency, 1900 Broadway, N. Y City
C M Payne Western Sales Agt. 645 S Spring St. Los Angeles, Cal

"STANDARD" Steam and Air-Pressure Gauges

Water Circulating Pressure Gauges for Gasoline Cars
Pop Valves Wire Wheel Gauge Cocks, Water Gauges
Manufactured by
STANDARD GAUGE MFG. CO.
SYRACUSE, N. Y
BRANCHES
New York Chicago
Pacific Coast Agents:
H.W. TAY CO.
San Francisco
S W Agent
AUTO EXCHANGE SUPPLY CO. St. Louis, Mo.
New York Agent
CHAS. S. MILLER
N. E. Agents
POST & LESTER
Hartford, Conn.

The
Auto Supply
Company

Headquarters for everything pertaining to Automobiles

1662 Broadway, New York

WE'LL MAKE THAT MACHINE FOR YOU

ACCURATELY
RELIABLY
REASONALBY

Because We are equipped for it

A specialty of close work on automatic and interchangeable machine parts
HAMILTON CASSARD, Baltimore, Md.

"Star" Lathes

Foot Lathes
Heavy Engine Lathes
Bench Lathes
Wood Turning Lathes
Speed Lathes

C-4)

Suitable for electrical and repair work, model makers, gunsmiths, technical schools and fine, accurate machine-shop and tool-room service.
Send for catalogue "S"
The Seneca Falls Mfg. Co.
416 Water St., Seneca Falls, N.Y., U.S.A.

Lathes FOR Repair Work
9 to 13 in Swing

No. ¼ Lathe, 9x25, List Price, $85.00
No. 5 Lathe, 11x24, List Price, $90.00
Send for Catalogue

W. F. & JOHN BARNES CO.
204 Ruby Street, ROCKFORD, ILL.

FISCHER SPARK COILS AND PLUGS

Reliable, well made and handy adjustments.
Pamphlets for the asking.

FISCHER SPECIAL MFG. CO.
2076-2078 Reading Road, Cincinnati, Ohio
Eastern Representatives, W. K. THOMAS & CO.
2 Hanover Street, Baltimore, Md.

AUTO TOPS
2, 4, 5 bow of all descriptions and finest qualities, also body upholstering, cushions, storm fronts and aprons.
Springfield Auto Top & Upholstering Co.
74 HARRISON AVE., SPRINGFIELD, MASS.

A FEW "WAGNER" FEATURES

Simple, positive grip control; improved belt adjuster; diamond loop frame; twin forks; belt drive; easy to ride; easy to sell. Write for agency terms.

THE WAGNER MOTOR CYCLE CO
327 St. Peter St., St. Paul, Minn.

AUTO TOPS

3, 4 & new 5 & 7 seat tops and finest upholstering, also body upholstering, tire covers, robes, aprons

Springfield Auto Top & Upholstering Co.
FARMINGTON AVE. SPRINGFIELD, MASS.

ATHERTON COASTER BRAKE

Simplest, Strongest and Absolutely free wheel in either direction. Fewer parts, with greater strength, than any other brake that has ever been produced.

SELLING AGENT.
D. P. HARRIS, 48 Warren St., New York

THE DIETER STEAM ENGINE

Three and Four-Cylinders, Single Acting, Reversible Changeable Cut-off

The most practicable, compact and simple steam engine for automobile, boat and stationary use, and the only engine that can be used with superheated steam successfully. Exclusive license in operation at our office.

Patented
THE DIETER STEAM ENGINE CO.
106 LIBERTY STREET NEW YORK

THE
MASON STEAM ENGINE
for Autos, Power Tools, etc.

In material, workmanship and results it is

The World's Standard

6000 in use

THE MASON REGULATOR CO.
Boston, Mass., U. S. A.

Young's Auto Cylinder Oil is in the Lead

Write ME for prices

O. W. Young, Newark, N.J.

OR

Motor Car Supply Co.
Chicago, Ill.

VALENTINE & COMPANY

Manufacturers of **HIGH-GRADE VARNISHES and COLORS for MOTOR CARS.** Send for Color Sample Book

The VALENTINES Varnish

NEW YORK CHICAGO BOSTON PARIS AMSTERDAM

Tell Us Your Tire Troubles

We repair or remake old Automobile Tires. Let us repair your tires.

Repairs done immediately on receipt, and satisfaction guaranteed.

N. B.—Recovering Tires Our Specialty.

D. E. FOOTE RUBBER COMPANY
69-73 Frankfort St., Cleveland, Ohio

The SHIPMAN AUTOMATIC CARBURETOR

Something new and something better

Simple, reliable, and gives a uniform mixture regardless of the speed of the engine or position of the throttle. Write for printed matter and price.

RALPH SHIPMAN SUNBURY, PA.

"A WORD TO THE WISE"

Now is the time to get prospects in line for next season's business. Our 1906 model is ready for delivery, and we are closing agencies for the season. If you have not already written for agents' terms, Do it Now

THE WAGNER MOTOR CYCLE CO.
327 St. Peter St. St. Paul, Minn.

AUTO TOPS

Springfield Auto Top & Upholstering Co.
71 HARRISON AVE., SPRINGFIELD, MASS.

ATHERTON COASTER BRAKE

Simplest, Strongest and absolutely free wheel in either direction. Fewer parts, with greater strength, than any other brake that has ever been produced. SELLING AGENT,

D. P. HARRIS, 48 Warren St., New York

THE DIETER STEAM ENGINE

Three and Four-Cylinders
Single Acting Reversible
Changeable Cut-off

Patented
108 LIBERTY STREET

THE DIETER STEAM ENGINE CO.
NEW YORK

THE
MASON STEAM ENGINE
for Autos, Power Tools, etc.

In material, workmanship and results it is
The World's Standard
6000 in use
THE MASON REGULATOR CO.
Boston, Mass., U. S. A.

Young's Auto Cylinder Oil is in the Lead
Write ME for prices
O. W. Young, Newark, N.J.
OR
Motor Car Supply Co.
Chicago. Ill.

FOR CAPE TOPS
Japanned and Leather Covered
BOW SOCKETS
Extra Well Made and Strong
BEAUTIFUL FINISH
Brass Curtain Fasteners

ROEHM & DAVISON, L'td
Detroit, Mich.

WE'LL MAKE THAT MACHINE FOR YOU

ACCURATELY
RELIABLY
REASONABLY

Because We are equipped for it

A specialty of close work on automatic and interchangeable machine parts

HAMILTON CASSARD, Baltimore, Md.

THE STROWBRIDGE BROADCAST SEED SOWER.

The Strowbridge sows to perfection grain and seeds of all kinds, any desired amount per acre, also land plaster, salt, lime, ashes, fertilizers, when dry, etc. Will sow 100 acres per day, and is easily attached to any cart or wagon.

Mfrs. price, each . . . . . $12.00 Our net price, each $10.00

THOMPSON'S WHEELBARROW GRASS SEEDER.

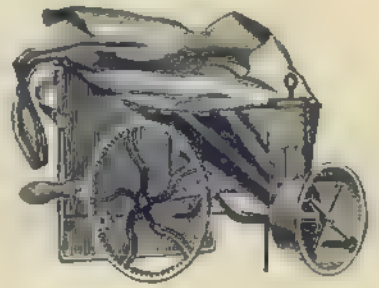
This Seeder is arranged to sow all chaffy seeds such as red top, orchard grass, and blue grass, and also seeds like timothy, hungarian and clover, in any quantity, from 6 to 30 quarts to the acre, mixed or separate. The hopper being carried close to the ground the sowing is not affected by the wind.

No. 5, Seeder complete with 14 ft. hopper . . . . . Mfrs. price, each, $13.00 Our net price, each, $9.00
" 4, Grain Hopper only . . . . . " " 6.00 " " 4.00

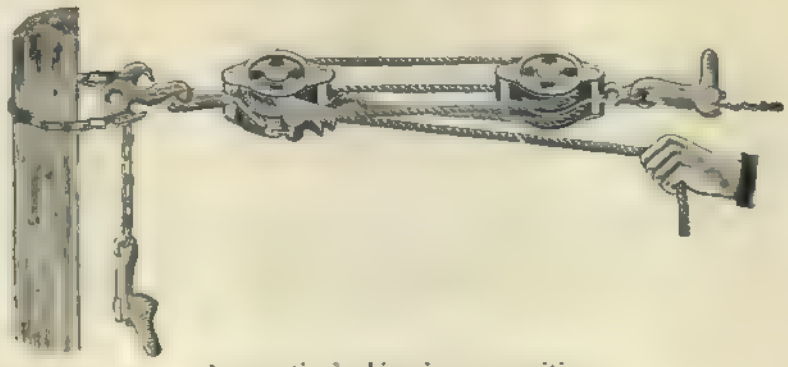
CAHOON'S PATENT BROADCAST SEED SOWER.

Sows all kinds of grain and grass seed from 4 to 8 acres per hour. At common walking gait will throw wheat about 40 feet.

Mfrs. price, each . . $6.00
Our net price, each . . 4.00



CANTON WIRE STRETCHER.



Automatic, locking in any position.

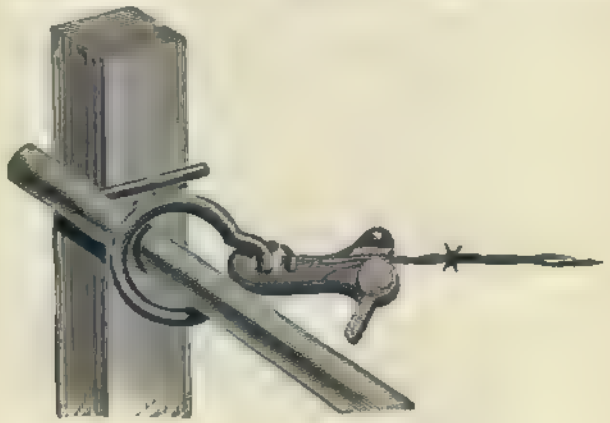
Mfrs. price, per doz. . . . . $15.00 Our net price, each $1.00

NEVER SLIP WIRE STRETCHER.

If you cut or injure the galvanizing on a wire, it lets in rust. Consequently the wire is weakened and breaks at this point. The Never Slip Stretcher has an iron jaw, but no teeth. When it gets a hold it never lets go, but hangs on with a deathlike grip to all kinds of wire.

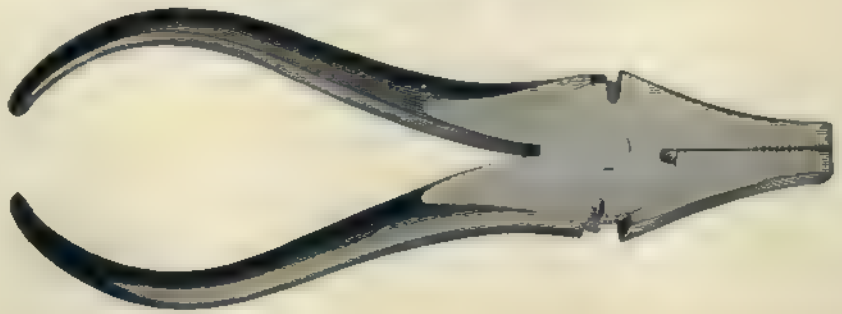
Mfrs. price, each . . . . . $1.25 Our net price, each $1.00

COME-A-LONG WIRE STRETCHER.



Mfrs. price, per doz. . . . . $6.00 Our net price, each $0.50

WIRE CUTTING PLYERS.



Best quality cast steel, 8 inches . . . . . Mfrs. price, per doz., $15.00 Our net price, each, $1.00

RETURN BALLS.

4102-4 Return Ball made of heavy card board with map of world. Gilt embossed paper around center. Heavy elastic cord with gilt ring. Diameter of ball 3½ in. 1 doz. assorted colors in box.
Per doz., $0.40

4103-4 Return Ball made of heavy card board. Assorted colors, embossed band around center. Heavy elastic cord and gilt ring. Diameter of ball 3¾ in. 1 doz. assorted in box. **Per doz., $0.40**

SQUEAKING FACES.

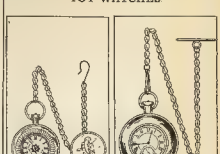
4104-4 Squeaking Faces made of paper mache, painted in natural colors. Frog face on one side and man's face on the other. Embossed gold paper band. Diameter 2¾ in. 1 doz. in box.
Per doz., $0.40

ROAMING TOYS.

5860-2½ Roaming Toys made of tin, highly colored. Assorted Bugs, Mice, Frogs, etc. Average size 2½ x 4 in. 3 dozen assorted in box.
Per doz., $0.25

5861-4 Roaming Toys made of paper mache, highly colored. Butterflies, Turtles, Fish, Frogs, Etc. Average size 3¼ x 5 in. 3 dozen assorted in box.
Per doz., $0.40

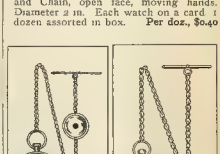
TOY WATCHES



3625-4 3626-4

3625-4 Boy's Gilt and Nickel Watch with Chain and Charm, embossed front and back, colored dial, moving hands. Each watch on a card. 1 dozen assorted in box. **Per doz., $0.40**

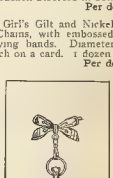
3626-4 Large Nickel plated Watch and Chain, open face, moving hands. Diameter 2 in. Each watch on a card. 1 dozen assorted in box. **Per doz., $0.40**



3627-4 3628-4

3627-4 Boy's Gilt and Nickel-plated Watch, with Chain and Charm, embossed front and back, colored dial, moving hands. Diameter 1⅝ in. Each watch on a card. 1 dozen assorted in box.
Per doz., $0.40

3628-4 Girl's Gilt and Nickel Watches with Chains, with embossed colored dots, moving hands. Diameter 1⅝ in. Each watch on a card. 1 dozen assorted in box. **Per doz., $0.40**



3629-4 Girl's Chatelaine Watch, assorted Nickle-plated and Gilt, front beautifully embossed with colored dots, moving hands. Diameter 1⅜ in. 1 dozen assorted in box. **Per doz., $0.40**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Hammers

COPPERING

Drews

No.	Per Doz.
1—Weight 20 oz.	$12.75

SOLID COPPER

For Driving out Pins, etc., from Finished Work; will not bruise the surface

Weight, lbs.	1	1½	2	2½	3	4
Each	$1.00	1.50	2.00	2.50	3.00	4.00

BRASS, MACHINISTS

Polished Brass Head, Steel Shank, Hardwood Handles, except No. 91, which has a Knurled Handle

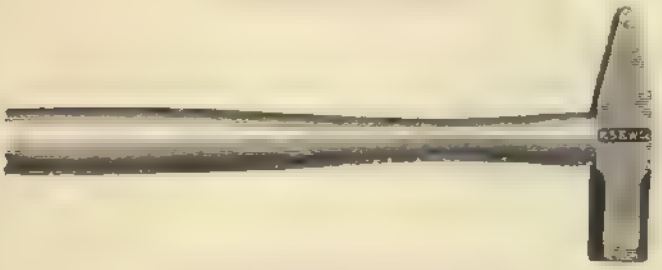
No.	91	92	93	94
Weight, oz.	2	4	8	16
Length, Handle, in.	5	7	7½	9
Each	$0.50	.70	.90	1.60

SHINGLE WEAVERS

Best Quality Solid Cast Steel

No.	260B
Weight, oz.	12
Per doz.	$15.00

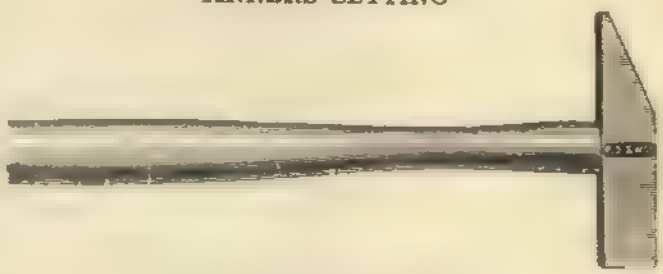
TINNERS RIVETING



Solid Cast Steel, Polished

No.	Per Doz.
2—1 in. Face, Handled Weighs 18 oz.	$8.31

TINNERS SETTING



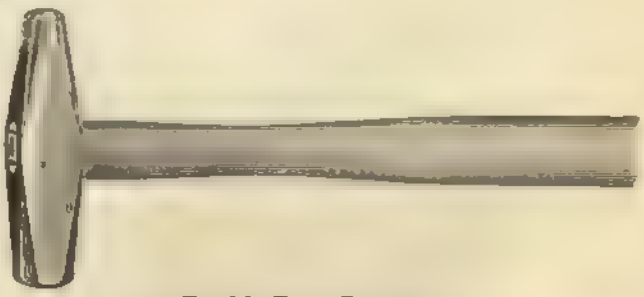
Solid Cast Steel, Polished

No.	Per Doz.
2—1 in. Face Handled Weighs 18 oz.	$8.31
3—⅞ in. Face. Handled Weighs 14 oz.	6.75

RIVETING

Machinists
Solid Crucible Cast Steel

No.	267
Weight, oz.	3
Per doz.	$4.80



Double Face, Round
Solid Crucible Cast Steel

No.	245	244	243
Weight, oz.	3	5	8
Per doz.	$6.00	6.25	6.75

One-Half Dozen in a Box

Weights do not include Handles

Hammers

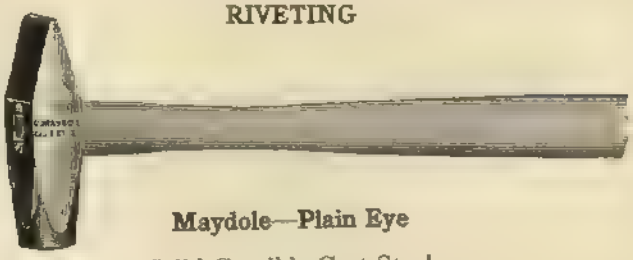
RIVETING

V. & B.—Plain Eye

Drop Forged, Crucible Cast Steel

No	0	1	3	5
Weight, oz	4	7	12	18
Per Doz.	$5 50	5.75	6 25	7.00

RIVETING



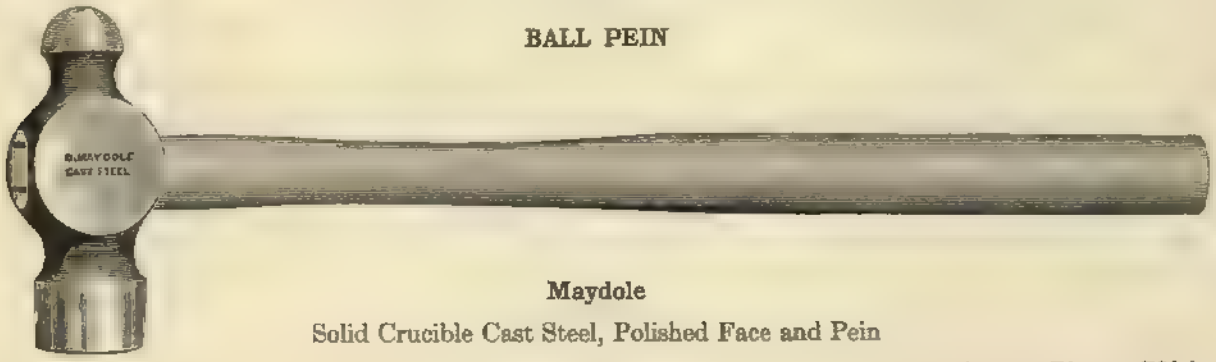
Maydole—Plain Eye

Solid Crucible Cast Steel

No	44	43	42	41
Weight, oz	4	7	13	18
Per doz	$5.00	5 25	6.00	7.25

One-Half Dozen in a Box. Weights do not include Handles

BALL PEIN

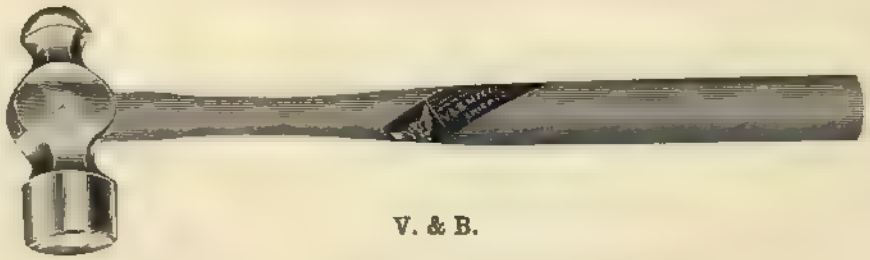


Maydole

Solid Crucible Cast Steel, Polished Face and Pein

No	78	77	76	75	74	73	72	71	70½	70
Weight	5 oz.	7 oz.	10 oz.	13 oz.	1 lb.	1¼ lb.	1½ lb.	1⅞ lb.	2¼ lb.	3 lb.
Per Dozen	$9.25	9.50	10.00	10.50	11.25	12.25	13.50	15.00	17.00	20.00

One-Third Dozen in a Box. Weights do not include Handles



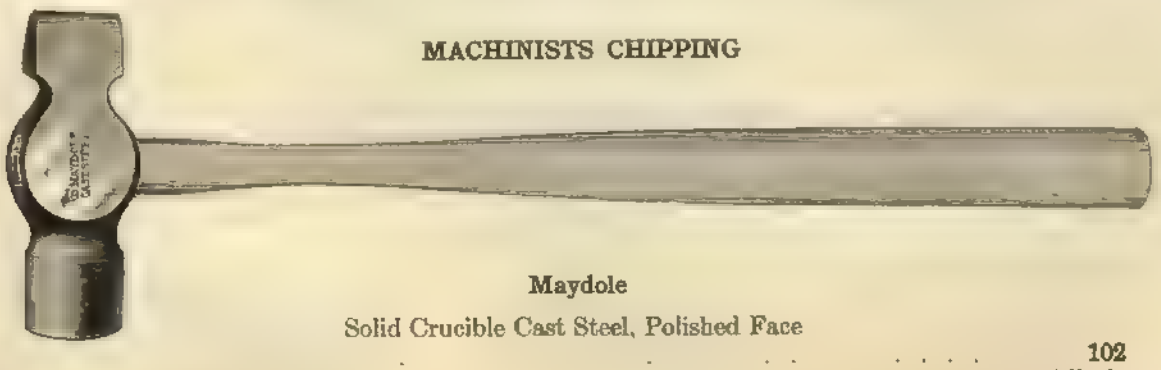
V. & B.

Drop Forged from Crucible Cast Steel, Polished Face and Pein

No	3/0	2/0	0	1	2	3	4	5	6	7	8
Weight	8 oz.	12 oz.	1 lb.	1¼ lb.	1½ lb.	1¾ lb.	2 lb.	2¼ lb.	2½ lb.	2¾ lb.	3 lb.
Per Dozen	$12.00	12 00	12 50	13 50	14 50	15 50	16 50	17 50	19.00	20.50	22.00

Nos. 6 to 8 One-Third Dozen, balance One-Half Dozen in a Box. Weights do not include Handles

MACHINISTS CHIPPING



Maydole

Solid Crucible Cast Steel, Polished Face

No.	102	101
Weight	1 lb. 2 oz.	1 lb. 6 oz.
Per Dozen	$11.50	12 50

One-Third Dozen in a Box. Weights do not include Handles

"Favorite" Bicycles

Adult and Juvenile For 1906

Our proposition will convince you where to place your business
The Fittest has Survived

THE TOLEDO METAL WHEEL CO., TOLEDO, OHIO

The New Soot-Proof Plug

Indestructible. It never breaks. This is a very desirable feature because other so-called soot-proof plugs are very expensive, because they are not durable. It has a double explosion chamber, which is a new and valuable feature. No other plug made is like it, and no other compares with it for durability and genuine satisfaction. Guaranteed soot-proof for six months.

THE OAKES & DOW CO.

40 Sudbury Street, BOSTON, MASS.

Manufacturers of SOOTLESS and COMET Spark Plugs
Regular sizes—Sootless, $1.75. Comet, $1.50

2 AND 3-SAW GANG EDGERS.

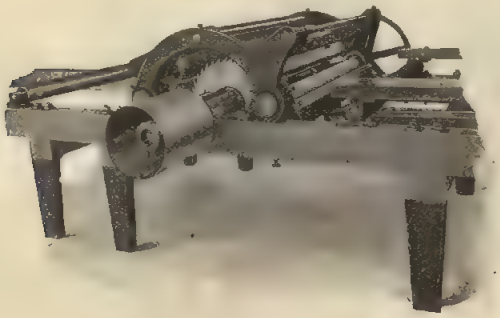


FIG 2627

These Edgers are built in two sizes, 30 and 40 inches, and have ample capacity for mills up to 30,000 feet per day.

The 30-inch Edger as a two-saw machine can be furnished either with two movable, or one stationary and one movable saw, and as a three-saw machine, one stationary and two movable saws of 14-inch diameter, and either with or without front pressure rolls. The two-saw machine will edge boards 27 inches in width, and the three-saw, 23 inches in width.

Shipping weight, 1,800 pounds.

The 40-inch Edger which carries 16-inch saws is seldom built with less than three saws, and will edge boards up to 33 inches, while both machines will cut strips as narrow as 3 inches in width.

Length of machines over all, 21 feet.

Shipping weight, 2,100 pounds.

FIG 3634.

GORDON HOLLOW BLAST GRATES.

The Gordon Hollow Blast Grate increases the steaming capacity of a boiler from 20 to 50 per cent. Gives as good results with wet, green or frozen sawdust or other refuse as a draft grate gives with dry wood. Sold on approval, subject to thirty days' trial, being returnable at our expense, if unsatisfactory.

TOWER EDGERS.

The TOWER 32 inch 2 and 3-saw Edgers. For mills cutting not to exceed 20 000 feet in ten hours.

The TOWER EXTRA 36 inch Edgers and the TOWER EXTRA 42 inch Edger For mills cutting up to 30 000 feet.

The TOWER EXTRA 54 inch Edger. For mills cutting up to 50 000 feet.

There are 1,500 TOWER and TOWER EXTRA Edgers in daily use.

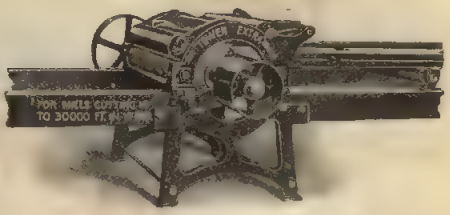


FIG 2625

TOWER ONE-MAN 2-SAW TRIMMER.

FIG. 2626.

The TOWER One-man 2 saw Trimmer. With this trimmer one man can easily trim the output of a mill cutting up to 30,000 feet in ten hours or changed while the saws remain in motion. There are two feeds, which may be started, stopped

The TOWER Variable Feed One man 2-saw Trimmer. All iron and steel. It has a variable feed, exceedingly simple and practical. Emphatically the best 2 saw trimmer made. For mills cutting up to 50,000 feet.

The manner of shifting the saws in both of the above trimmers is such as to save time, steps and lumber.

FIG 3634.

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The Gordon Hollow Blast Grate increases the steaming capacity of a boiler from 20 to 50 per cent. Gives as good results with wet, green or frozen sawdust or other refuse as a draft grate gives with dry wood. Sold on approval, subject to thirty days' trial, being returnable at our expense, if unsatisfactory.

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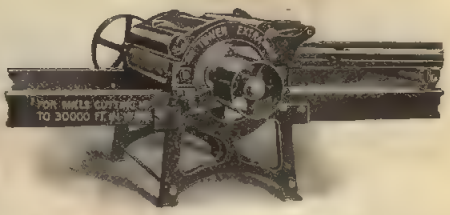

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2 AND 3-SAW GANG EDGERS.

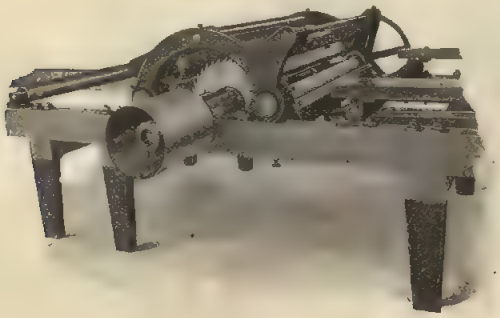


FIG 2627

These Edgers are built in two sizes, 30 and 40 inches, and have ample capacity for mills up to 30,000 feet per day.

The 30-inch Edger as a two-saw machine can be furnished either with two movable, or one stationary and one movable saw, and as a three-saw machine, one stationary and two movable saws of 14-inch diameter, and either with or without front pressure rolls. The two-saw machine will edge boards 27 inches in width, and the three-saw, 23 inches in width.

Shipping weight, 1,800 pounds.

The 40-inch Edger which carries 16-inch saws is seldom built with less than three saws, and will edge boards up to 33 inches, while both machines will cut strips as narrow as 3 inches in width.

Length of machines over all, 21 feet.

Shipping weight, 2,100 pounds.

We do not break cases. **DRUMS.**

4151-18½ Contains 2 doz. Drums, assorted, 6 styles, 7 in., 1 3 doz. each, as follows: "Moorish," "Regimental," "Embossed Eagle," "Winner," "Egyptian," "Floral." 2 doz. in case. Per doz. **$1.85**

4152-22½ Contains 2 doz. Drums, assorted, new style. Special large 25c. Drums. Size, 8 in. . . . . per doz. **$2.25**

4153-38½ Contains 1 doz. Drums, assorted, 6 styles, 1 6 doz. each, as follows: "Moorish," "Regimental," "Embossed Eagle," "Winner," "Egyptian," "Floral." Size, 9 in. 1 doz. in case. Per doz. **$3.85**

4154-60 Contains 1 doz. Drums, assorted as follows. 1 6 doz. each, "Moorish," "Regimental," "Embossed Eagle," size 10 in.; 1/6 doz. each, "Winner," "Egyptian," "Floral," size 11 in. 1 doz in case. Per doz. **$6.00**

4155-85 Contains ½ doz. assorted, 6 styles, 1/12 doz. each, as follows. "Moorish," "Regimental," "Embossed Eagle," size, 12 in.; 1/12 doz. each, "Winner," "Egyptian," "Floral," size 13 in. ½ doz. in. case. Per doz. **$8.50**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

Case Assortment of Toys No. 4229-120.

Case Assortment of Toys, all painted and decorated in bright colors, put up especially for us, contains a fine assortment of big selling toys to retail at 25c. each. Average cost each, 16⅔c. Case contains 18 styles, ½ doz. each.

CASE 4229-120 CONTAINS 18 STYLES, 1.3 DOZ. EACH AS FOLLOWS:

50 Fine dressed Squeaking Figures on polished whistle handle; 3 kinds. Length, 15 in

51 Furniture Set (1 table, 3 chairs and 1 sofa) in a covered box Size of box, 8 x 8 in

52 Squeaking Fur Cat; will squeak when tail is pressed. Length, 8 in. height, 5¼ in

53 Fur Lamb, with voice and ribbon on wheeled platform. Height, 7 in.; length, 6¾ in

54 Fur Goat and Clown Rider on tin wheeled platform. Height, 8½ in.; width, 6 in.

55 Big Hay Cart and Wood Horse on wheeled platform. Length, 13 in.; height, 6¾ in.

56 Cloth covered Hay Cart and paper mache Horse on wheels. Length, 14 in.; height, 7 in

57 Fine painted Sand Cart and wood Horse on wheels. Length, 12½ in., width, 6¾ in

58 Stable with 3 Horses, 1 Cart and Man. Height, 5¾ in.; width, 7¼ in

59 Fine cloth covered Crowing Rooster with fancy colored feathers on bellows. Height, 10 in.

60 Toy Butcher Shop, containing full assortment of meats and butcher. Height 8½ in.; length, 6½ in

61 Dressed Boy sitting on a musical bellows; takes off hat when bellows is pressed. Height, 7½ in.

62 Dressed Clown sitting on a Dog House; dog comes out of house and clown bows when lever is pressed. Height, 9½ in., width, 4½ in

63 Highly colored Saddle Horse on wheeled platform; movable head. Height 8½ in., length, 9½ in.

64 Fine dressed Clown with 2 bells on painted stick; bows when wire is pulled. Length, 15¾ in.

65 Fine dressed Clown with 4 cymbals on painted stick; moves arms and legs when wire is pulled. Length, 14¼ in

66 Movable Fox chasing a Hen on iron wheeled platform. Height, 7¾ in.; length, 12¼ in.

67 Doll in willow swing Height, 11¼ in.; width, 8¾ in.

Total number of pieces complete, 72. Average cost each 16⅔c. Price per case, $12.00

WE DO NOT BREAK CASES. **READ THE PREFACE BEFORE ORDERING.**

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

GENUINE PYROGRAPHY WARE—Continued.

6237-65 9x18 in. Pipe Rack, holds twelve pipes, hinged rack, fancy design, burnt and colored; screw ring hanger. Each in a box.
Per doz., $7.50

6238-45 6x20 in. square panel, three subjects, Sunbonnet Girls and Overall Boys, handsomely burnt and colored; fitted with screw ring. Each in a box.
Per doz., $4.50

6239-85

6240-45

6239-85 10x20 in. panels, three very attractive subjects, fancy burnt background beautifully colored, screw ring hanger. Each in a box
Per doz., $8.50

6240-45 8x10 in. frames, cabinet opening, 10 assorted designs handsomely burnt and colored; fitted with glass, back and wire easel and each in paper carton.
Per doz., $4.50

6241-22½ 5x10 in. Pipe Rack, holds four pipes, hinged rack, pyro-etched design; fitted with screw ring. Each in box
Per doz., $2.25

6242-22½ Twelve assorted brownies representing various nations; appropriate for dens or as children's toys; fitted with screw ring. Sizes, 12½x5 in. 1 dozen in abox.
Per doz., $2.25

6243-20 4¾x6 in. frame, card opening, neatly burnt, assorted designs; fitted with glass back and hanger. ½ dozen assorted in a box.
Per doz., $2.00

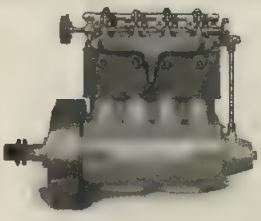
6214-22½

6215-180

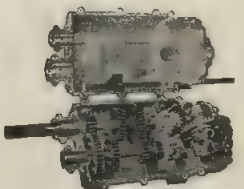
6244-22½ 6x8 in. frame, cabinet opening, burnt and colored floral and fruit designs; fitted with glass, back and easel. ½ dozen assorted in a box.
Per doz., $2.25

6245-180 Clock novelties, six patterns; cases are elegantly burnt and colored; fitted with good 2-in. movement and supported by heavy nickel finished easel; assorted sizes, 6x8 in. and 8x10 in. Each in a box.
Per doz., $18.00

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.



34 H. P. 4-Cylinders. Weight, 340 lbs.



Our Bevel Gear Drive Transmission.

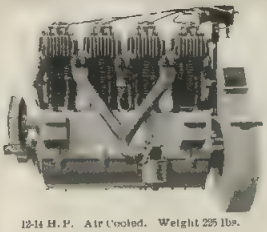
"They are the Best Motors in the Country"

is the unanimous verdict of those who know—referring to our engines. Investigation will convince anyone that this reputation is deserved. Our 4-cylinder motor develops 34.2 H. P., at 900 R. P. M., and weighs but 340 pounds. If you want a powerful, reliable motor for your 1906 cars, get our quotations before placing your order.

OUR TRANSMISSIONS are also winning favor. We supply them for cars from 15 to 20 H. P., also one for bevel gear drive. Write for catalog and prices.

Trebert Auto & Marine Motor Co.

407 St. Paul Street ROCHESTER, N. Y.



12-14 H. P. Air Cooled. Weight 225 lbs.

Our motive power equipment insures you of decided satisfaction, as they are powerful, light, durable and easy to install.

We are specialists in this line, so why not let us figure with you? Our catalog is yours for the asking. Write

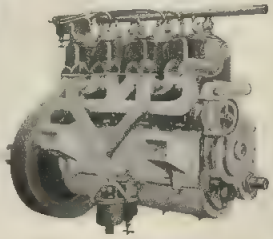
The Kirkham Motor Mfg. Co.

BATH, N. Y.

MR. AUTOMOBILE MANUFACTURER:

ARE YOU SATISFIED ?

Are you satisfied with your motive power equipment, and are your customers satisfied as well? It's worth dollars and cents to YOU to have a satisfied feeling, and more, if your customers have the same feeling.



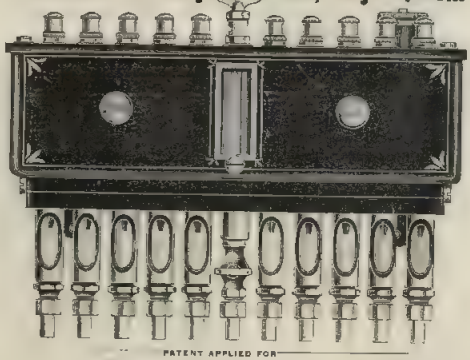
15-20 H. P. Water Cooled. Weight 280 lbs.

The "DAVIS"

15 H. P. 4½ x 4 two cylinder opposed motor. Total weight including fly-wheel 240 lbs. We can furnish this motor with automatic pump oiler, delivering to each individual bearing, and feeds only when engine runs in direct proportion to speed of motor. We are also building a two cylinder motor of the same design but with 5" bore by 4½" stroke. This larger engine is 31" over all, with a 12½ lb fly-wheel. Write us for full description and price.

DAVIS MANUFACTURING CO. Milwaukee, Wis.

A Lubricator for Any PRESSURE Car, Any System

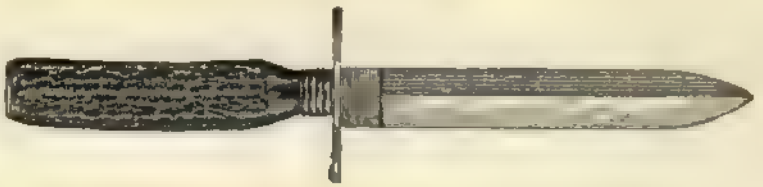


PATENT APPLIED FOR

An Automatic Pressure Feed Oiler, instantly changed to Gravity. Each Sight Feed in itself an automatic pump forcing the oil to the bearings, practically like a mechanical Oiler.

J. T. PEDERSEN, 636-644 First Ave. NEW YORK

Daggers



No. — Per Doz.

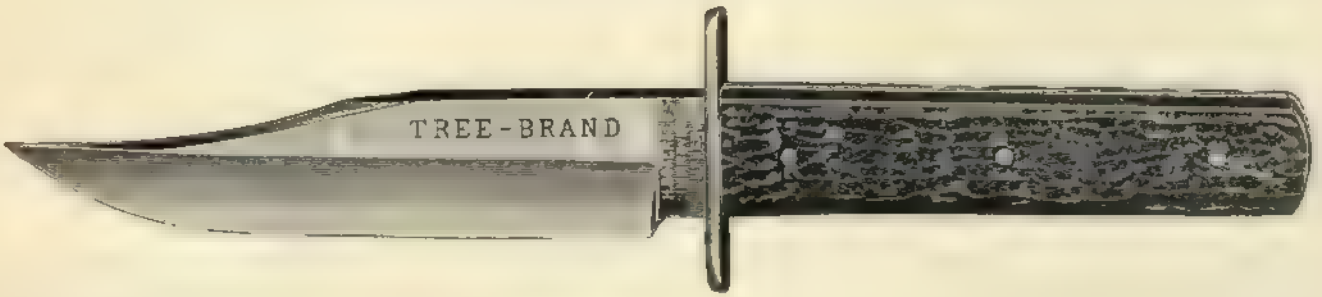
120—5 inch Blade, **Stag** Handle, Best English Bar Steel, Hand Forged, Double Edge Spear Point, German Silver Guards, with Sheath, ... $8.20

Lock Back Hunting Knife

No. — Per Doz.

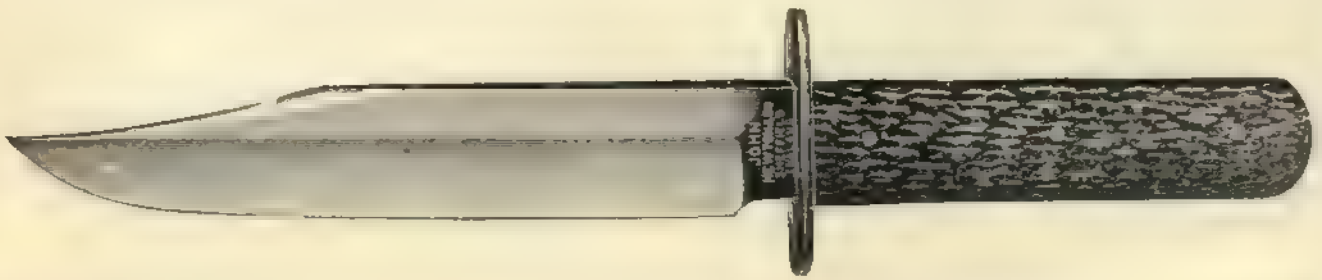
6656—Hand Forged from English Bar Cutlery Steel, Heavy Saber Clip Blade, Brass Lining, German Silver Trimmings, ... $18.00

Hunting or Bowie Knives



No. — Per Doz.

7000—**Bowie** Knife, Blade 6 inches, Hand Forged from English Bar Steel, Extra Heavy Saber Clip Blade, German Silver Guard, with Shield, ... $13.10



No. — Per Doz.

7602 **Bowie** Knife, Blade 6 inches, Hand Forged from English Bar Cutlery Steel, Heavy Saber Clip Blade, German Silver Guard, with Shield, ... $16.70

Bokers Sheaths for Bowie Knives, Russett Leather, Embossed, See Page 1514.

Corn Knife

Crocus Polished, Brass Lined.

No		Per Doz
6697—3¼ inch, Celluloid Handle,	. . . . .	$13 00

Budding Knife

Crocus Polished, Brass Lined, Polished White Bone End.

No		Per Doz
6427—Full Length Handle 4¾ inch, Black Buffalo Horn,	. . . . .	$19 00

Swedish Knives

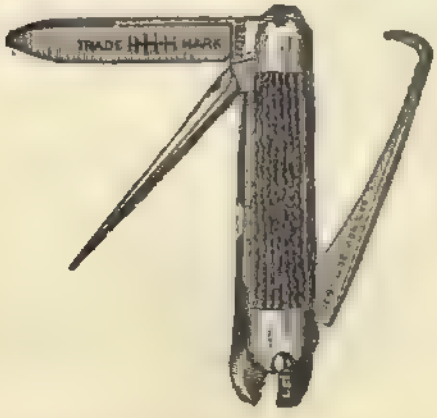
Open.

Closed

Made from Finest Quality Razor Steel, Curly Grain Handles, Brass Lined.

No		Per Doz	No		Per Doz
2—2¾ inch, Blade, 4 inches Closed,	. .	$13 35	**01**	4 inch Blade, 5¼ inches Closed	$15 00
1—3¼ inch Blade, 4⅝ inches Closed,	.	14 15	**0**	5 inch Blade, 5¾ inches Closed,	17 70

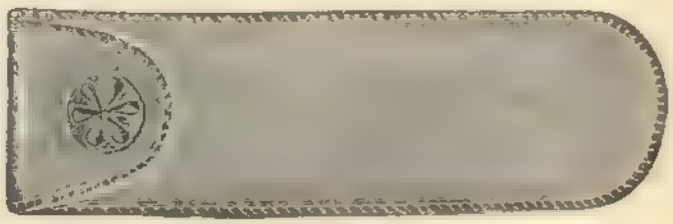
Combination Tool Knife



No.		Per Doz.
HHH—**Combination** Knife, contains Leather Punch, Swedging Awl, Wire Cutter, Wire Plyers, Alligator Wrench, Hoof Hook, Screw Driver, Screw Bit, and Cutting Blade,	. . . . .	$21.00

Pocket Knife Purses

Chamois Skin, Glove Button Fasteners.



No		Per Doz.
2B—Length 2½ inches,	. . . .	$2.00
3B—Length 2¾ inches,	. . . .	2.00
4B—Length 3 inches,	. . . .	2.00
5B—Length 3½ inches,	. . . .	2.00
6B—Length 4 inches,	. . . .	2.00

THE "TREVOR" DRAG-SAWING MACHINE.

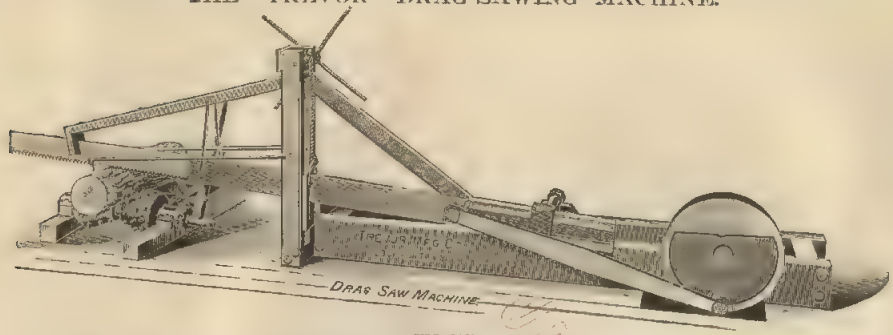


FIG. 2628.

Parties operating shingle mills will find this Drag Saw Machine very efficient for cross-sawing their logs to any desired lengths. It has sawed from 9,000 to 10,000 feet of pine logs into 18 inch lengths in ten hours, and other lengths correspondingly. Pulleys in the machine are 24 by 6 inches face. Speed, 150 to 175. A truck for supporting the rear end of the log is supplied but is not shown in the cut. The spiked roller is to be placed in wooden journals at the head of the log, and by means of the handle the log can be moved forward and adjusted quickly to the proper position. The truck moves on a track that is to be laid down in the floor of the mill, made of scantling with flat iron on the top. In case of small logs it is necessary to use the dogs to prevent rolling under the saw. A vertically sliding block is placed under the saw pitman for the purpose of raising the saw out of the cut while the saw continues in motion. If it is desired to draw the log forward by power, we can place a worm on the shaft in the machine to work in a worm wheel on a shaft coupled to the end of the shaft of the spike roller. The worm wheel is to be arranged to be thrown in to draw the log by power. An extra charge of $15.00 net will be made for this power connection, and it is only put on by us when specially ordered. This is not shown in the cut. The usual "hook tooth" saw is supplied, but if the "diamond tooth" saw is wanted it will be supplied 5½ feet long, 12 inches wide at the butt, 10 gauge, for $6.00 net extra. Orders not specifying will be supplied with the "hook tooth" saw. Floor space, 4 x 20 feet.

Weight.....1,800 lbs. Price.....$140.00

THE BEST STEAM FEED ON THE MARKET.

THE SOULE STEAM FEED.

INCREASES CUT AND CAPACITY OF MILL.

FIG. 2629.

Not an experiment—have been on the market over twelve years and are in use in every State in the Union, all through Canada, and are to be found wherever lumber is produced.

Write us for prices and terms.

Laib Co.
506
Louisville Ky

TRIPLEX ELECTRIC PUMPS.

Triplex Electric House Pump.

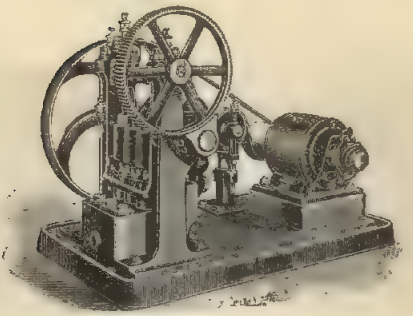


FIG. 1253.

The above illustration shows our outside guided Triplex Pump mounted on iron bed plate and connected by belt running over idler, to electric motor. By use of a float switch, see page 508, which cuts out or turns on the electric current as the water rises and falls in the tank; its action is entirely automatic. The pinion on the pump is of rawhide.

General Service Triplex Electric Pump.

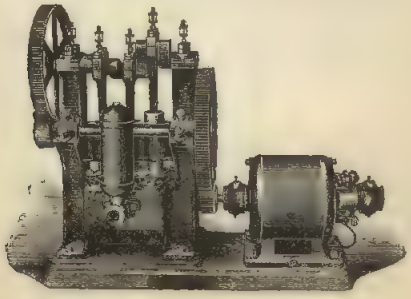


FIG. 1254.

The above illustration shows our outside guided Triplex Pump mounted on iron bed plate and connected by intermediate gearing to electric motor.

Laib Co.
507
Louisville Ky

TRIPLEX ELECTRIC PUMPS.

Triplex Electric House Pumps.

Diameter and Stroke of Plunger. Inches.	Suction, Inches.	Discharge, Inches.	Capacity per Hour, Gallons.	Elevation Will Raise, Feet.	Motor, Horse Power.	Price, with Bed Plate, Idler and Float Switch, Each.	Price Complete with Bed Plate, Idler, Belt, Direct Current Motor and Float Switch, Each.
1¾x3	1	1	270	100	½-¾	120.00	235.00
1¾x3	1	1	270	200	¾-1	120.00	250.00
1¾x3	1	1	270	350	1	120.00	275.00
2¼x4	1½	1½	600	100	¾-1	160.00	305.00
2¼x4	1½	1½	600	200	1	160.00	315.00
2¼x4	1½	1½	600	350	2	160.00	380.00
3 x4½	1½	1½	1200	100	1	205.00	360.00
3 x4½	1½	1½	1200	200	2	205.00	425.00
3 x4½	1½	1½	1200	300	3	205.00	470.00
3½x5	2	2	1800	100	1½	275.00	460.00
3½x5	2	2	1800	200	3	275.00	540.00
3½x5	2	2	1800	350	5	275.00	635.00
4 x6	2½	2	3000	100	2½	350.00	585.00
4 x6	2½	2	3000	200	5	350.00	710.00
4 x6	2½	2	3000	350	7½	350.00	800.00

General Service Triplex Electric Pumps.

Diameter and Stroke of Plunger, Inches.	Suction, Inches.	Discharge, Inches.	Capacity per Hour, Gallons.	Elevation Will Raise, Feet.	Motor, Horse Power.	Price, Pump with Bed Plate and Gears to Receive Motor, Each.	Price, Pump Complete with Direct Current Motor, Each.
1¾x3	1	1	270	200	½	130.00	235.00
1¾x3	1	1	270	350	1	130.00	260.00
2¼x4	1½	1½	600	200	1	175.00	305.00
2¼x4	1½	1½	600	350	2	175.00	370.00
3 x4½	1½	1½	1200	100	1	215.00	345.00
3 x4½	1½	1½	1200	200	2	215.00	410.00
3 x4½	1½	1½	1200	300	3	215.00	455.00
3½x5	2	2	1800	100	1½	295.00	455.00
3½x5	2	2	1800	200	3	300.00	540.00
3½x5	2	2	1800	350	5	310.00	645.00
4 x6	2½	2	3000	100	2½	340.00	550.00
4 x6	2½	2	3000	200	5	350.00	685.00
4 x6	2½	2	3000	350	7½	360.00	785.00

TRIP HAMMER.

FIG. 538

GONGS.

LOCOMOTIVE.

FIG. 539.

Size ..... Inches	4	5	6	7	8	9	10
Trip Hammer Gong, Pol. Each	2 45	2 95	3 70	4 60	5 60	6 .0	7 90
Locomotive " "	3.15	3 65	4 30	5 25	6 75		9 00

Size ..... Inches	11	12	13	14	15	16
Trip Hammer Gong, Pol. Each	9 25	11 00	12 90	15 00	18 50	23 00
Locomotive " "		15 00	21 00		35 00	

ENGINE BELLS.

FIG. 540.

Size	½ Inch	¾	4	4½	5	5½	6	6½	7	8	9	10
Figure 540 Plain Each	$1 75	2 00	2 25	2 50	3 00	3 75	4 50	5 75	7 00	8 50		10 00

GONG PULLS.

FIG. 541.

FIG. 542

Figure 541	Flat, 15 inches long, Malleable Iron, Brass Handle	Each $1.25
	Round Iron 22 inches long, Polished Brass Handle and Slide	" 2 00
Figure 543	7 inches long, Polished Brass	Each .75
	9 " " "	" 1 25

PYROMETERS.

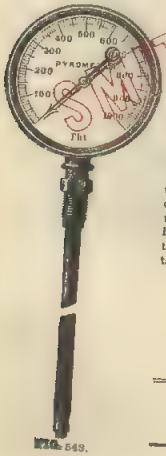


FIG. 543.

(GAUNTLETT SYSTEM)

The construction of these instruments is based upon the expansion and contraction of two metals, an iron tube is enclosed in a copper tube, or vice versa, both being connected at their lower ends.

The difference in the expansion of these tubes under heat is transferred by a movement to a Pointer which indicates the temperature on a Dial.

These Pyrometers are specially adapted for high temperatures, 1,800 degrees Fahr., however, being about the limit, since copper is used in their manufacture, the melting point of which metal lies below 2,000 degrees Fahr. In order to ensure correct indications, the tube or stem of the Pyrometer should be exposed to the heat up to the screw connection, and great care should be taken to prevent them from bending and overheating.

FIG. 544.

PRICES.

5 inch Dial, 1,000, 1,200 or 1,500° Fahr.....	$26 00
7 " " " " "	30.00

SMITH-COURTNEY CO. RICHMOND, VA.

THE IMPROVED THOMPSON INDICATOR.

ADAPTED FOR ALL SPEEDS.

PRICES.

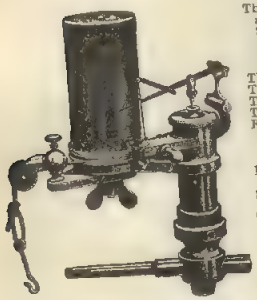


Fig. 545

Thompson Indicator, Standard Size, brass, nickel-plated, and highly finished, with two Straight-way Cocks, three Springs of various pressures, and corresponding Scales, 100 Metallic Paper Cards, a Screw Driver, a bottle of Oil and an extra Drum Spring, all inclosed in finely polished Oak Box with plated trimmings..... $35.00

The same, made of Steel, nickel-plated, for ammonia use. 120.00

Thompson Indicator, Small Size, and fixtures as above 70.00

The same, made of Steel, for ammonia use..... 100.00

The same, made of Aluminum, for both steam and ammonia. 100.00

Extra Springs, each 5.00

" Boxwood Scales, each ..... .50

" Paper Cards, one side metallic, per 100 ..... 1.00

" " both sides metallic, per 100 ..... 1.25

Linen Cord, warranted not to stretch, per hank of thirty feet ..... .50

Straight-way Cock, nickel-plated, for steam..... 2.75

" " " for ammonia 6.00

Three-way Cock, nickel-plated, for steam 6.00

" " " ammonia..... 10.00

Detent Motion..... 5.00

We furnish with each Indicator, free of charge, a copy of "Indicator Practice and Steam Engine Economy," by Frank F. Hemenway.

Price of book only..... $2.00, net.

In ordering please state sizes of springs required.

THE IMPROVED HOWARD THOMPSON INDICATOR

Is a thoroughly reliable instrument, Standard size, brass nickel plated, and highly finished, with two Straight-way Cocks, three springs of various pressures, and Corresponding Scales, 100 Metallic Paper Cards, a screw Driver, a bottle of Oil, and an extra Drum Spring, all inclosed in finely polished oak box, with plated trimmings. $75.00

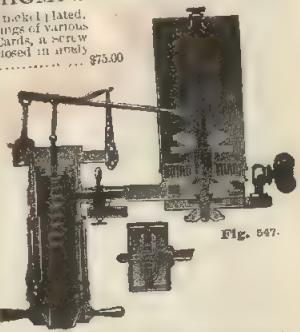


Fig. 547.

THREE-WAY COCKS.

Fig. 546.

Highly polished and nickel plated, carried in stock to fit all indicators.

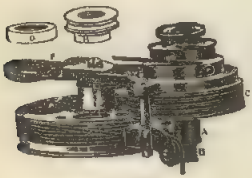


Fig. 548

PEERLESS REDUCING WHEEL (ALUMINUM).

The object of the reducing wheel is to reduce accurately the motion of an engine cross-head to that required for a paper drum of an indicator, and to give the required length of diagram, regardless of engine stroke. If either the Indicator or reducing motion is not correct, the cards are useless and deceptive; hence the first step towards obtaining the true state of affairs in a steam cylinder is an indicator that will show the pressure and a correct reducing motion by which diagrams can be taken, so that an intelligent engineer can interpret them, adjust the valves, and figure the power developed.

Price, complete..... $15.00

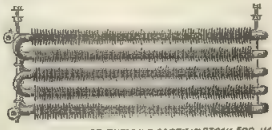
DUPLEX • WIRE • TERMINALS •

PREVENT LOOSE WIRES and POOR CONNECTIONS. SIZES FOR BATTERY PRIMARY and SECONDARY WIRES CARRIED IN STOCK. . . . . .

DUPLEX FLXIBLE CONNECTORS

PREVENT LOOSE WIRES AND SHORT CIRCUITS. SEND FIFTY CENTS FOR ASSORTED PACKAGES OF TERMINALS OR CONNECTORS ~

GLDS SIZE 01 02 03 $1.50 '04 '05 $2.50



RADIATORS for TRUCKS

BUILT IN UNITS TO FACILITATE RE PAIRS AND INCREASE OR DECREASE THE RADIATING SURFACE ACCORD ING TO THE SEASON

OUR OLD'S SIZE RADIATORS

ARE VERY POPULAR THESE WE CARRY IN STOCK FOR IMME- DIATE DELIVERY THEY WILL COOL ENGINE OF CURVE DASH MODEL SATISFACTORILY FOR 100 MILE TOUR

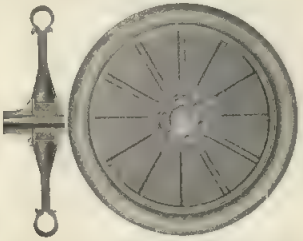
SEND FOR PHOTOGRAPH AND DETAILS

THE BLISS-WEBSTER CO.

DETROIT, MICH.

The Only Wheel for the Automobile

Heretofore it has been necessary for motor car manufacturers to use a type of wheel which has, in construction, been similar to those which have been used on carriages and wagons. The automobile, however, is different from the horse-drawn vehicle, and as different conditions require different treatment, the carriage wheel has not been entirely suitable.



The Indestructible Steel Wheel

we are now marketing, is superior in every respect. It is lighter than wood, does not warp or get out of line and is easy to clean. As racing cars cover the spokes of the wheels to present a closed surface, this form of wheel construction must therefore be speedier. Can be used with stock hubs.

Those manufacturers who are first to adopt it will profit as a result of giving their trade something new and something better. Write us for farther information.

TURNER & FISH, Manufacturers

CHICAGO, ILL.

Factory, 128 S. Clinton St. Offices—Suite 406 No. 17 Quincy Street

PORTABLE VALVE SEAT ROTARY PLANING MACHINE.

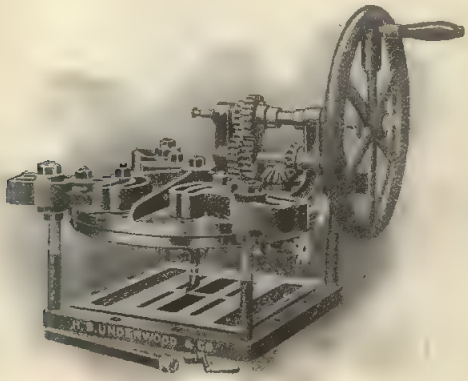


FIG. 2500

This machine was designed to face off worn valve seats, and valves of locomotives particularly, but the fact of it being so well adapted for attaching to the work, as well as the quick and accurate work that it will do, has made it a useful tool for various other kinds of work.

Each machine is furnished with a sample cutting tool, wrenches and hand fly wheel, as shown in the cut. There is no breaking of port-edges, and the work is perfect, requiring no filing or scraping after the machine has been used.

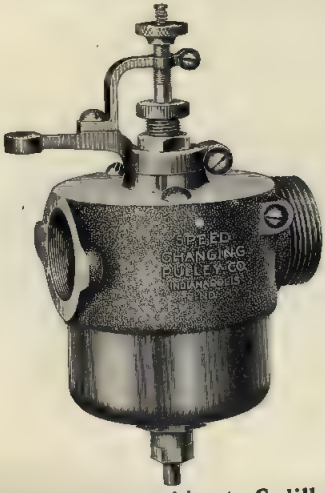
BUILT IN FIVE SIZES.

SIZE	Size Machine will face across corners	Maximum Distance of Studs	Minimum Distance of Studs	Weight Boxed
18 inches	18 inches	24 inches	19 inches	245 lbs.
22 "	24 "	31 "	23 "	345 "
26 "	28 "	35 "	27 "	440 "
28 "	32 "	39 "	29 "	512 "
30 "	36 "	44 "	31 "	600 "

"Universal Carburetors"

"Are Sold Under the Following Guarantee"

To increase the power of the engine
To increase the speed of the engine
To produce a uniform mixture at all engine speeds
To save 25 per cent. of gasoline
To prevent sooting of spark plugs
To insure a perfect level of gasoline no matter in what position the car is placed.



Special Fittings for attaching to Cadillac Machines.

E. NICHOLSON — E. L. NICHOLSON — C. P. NICHOLSON
NICHOLSON SHIP LOG COMPANY
204 Superior Street
Telephones—Bell, Ridge 425-J. Cuyahoga, Central 4042
Cable Address "Nichlog" Cleveland
A. B. C. Code, 5th Edition

CLEVELAND, O., Aug. 21, 1905.

Speed Changing Pulley Company,
Indianapolis, Indiana.
Gentlemen:— Enclosed please find my check for the No. 4 Universal Carburetor you sold me for my Royal Car
I take this opportunity of telling you that your carburetor has proven very satisfactory and I am much pleased with it. I recommend it to all my friends who have carburetor troubles.
Thanking you for your courtesy and fair dealing, I am,
Yours very truly,
E. NICHOLSON

IS IT POSSIBLE TO OFFER MORE?

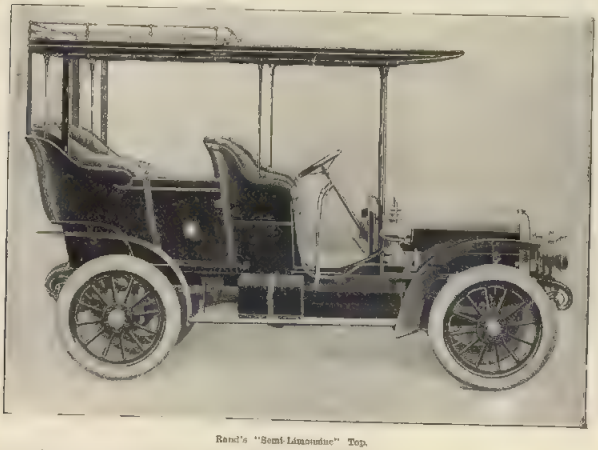
Users of Ford, Autocars and Rambler cars can save money and increase their pleasure by using the "Universal."

SPEED CHANGING PULLEY COMPANY
INDIANAPOLIS, IND.

Rands "Semi-Limousine" Top

In the 1906 line of Rand's tops put out by Wheeler Mfg. Co., 10-16 Baltimore Ave., West, Detroit, Mich., is included a style which they call a "Semi-Limousine." It has many advantages. The back seat is surrounded by plate glass. This acts as a dust shield as well as a protection to the occupants in case of stormy weather. It is fitted with heavy waterproof curtains, sliding glass front, and can be entirely closed in. This top has also the advantage of being light and not cumbersome.

The frame part of this top is similar in construction to those used in Rand's canopy tops for the past three years, being made entirely of hardwood, ribbed, and very strong. The front will extend beyond the dash, to furnish protection from sun and rain to the sliding glass front. The plate glass back is made in a detachable manner and, if desired, same can be removed, leaving it in the canopy construction appearance. As operators are nowadays using their cars more during all seasons of the year, the Rand's new semi-limousine will doubtless be much appreciated.



Rand's "Semi-Limousine" Top.

Springfield 1906 Tops

Springfield Auto Top & Upholstering Co., 74 Harrison Ave., Springfield, Mass., will offer for 1906 their 3, 4 and 5 bow tops in improved form. Their 1906 tops will be trimmed with the very best rubber mackintosh cloths, pantasotes and leather of any color, as customer or manufacturer desires. The highest grade of ash bows finished in natural wood or mahogany stain or leather covered, supported by brass bent or straight slat irons will be used. All brass fasteners will be of the best quality, also brass gooseknecks, and the top will be fitted with russet leather straps to hold them in shape. The bows are very highly polished, being coated with six coats of shellac and varnish and made to stand the sun and rain.

Their tops are equipped with side, rear and front curtains, all fitted with celluloid windows and made of the same material as the top, absolutely protecting the occupants of the car from wind, rain and cold. The front curtain is attached to the front bow and dashboard by brass fasteners and when not in use can be rolled up and fastened by straps, made of the same material, which can be unfastened and ready for immediate use.

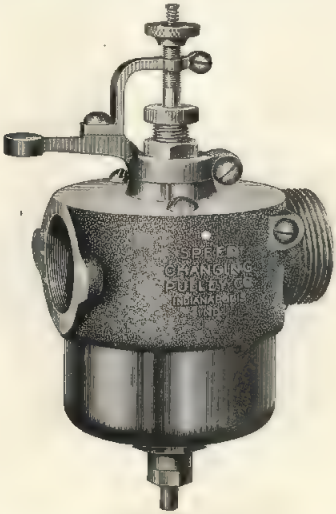
This concern is now ready to make contracts with automobile manufacturers and desires to hear from any interested in this line.

The Henry Roever Co., Market street, Chester, Pa, are putting out a cleanser and polish for highly finished surfaces, such as automobile bodies. This preparation is called "Modoc," and is highly effective in removing dirt and giving a good lustre to the body without any deleterious effect. As some cleansers are not polishes and some polishes are not cleansers, "Modoc," possessing both features, should meet with a big demand.

"Universal Carburetors"

"Are Sold Under the Following Guarantee"

To increase the power of the engine
To increase the speed of the engine
To save 25 per cent. of gasoline
To prevent sooting of spark plugs
To produce a uniform mixture at all engine speeds
To insure a perfect level of gasoline no matter in what position the car is placed.



1906 Model

Special Fittings for attaching to Cadillac Machines.

Hours—8-10 A. M 2-4 P. M. 7-8 P. M.

DR. M. J. SPENCER
2715 E. Washington Street
Phones: Office—Old, Main 2204. House—Old, Main 3030: New, 5242 K.

INDIANAPOLIS, IND., Sept. 28, 1905.

Speed Changing Pulley Company
City

Gentlemen—The carburetor that you placed on my machine gives satisfaction in every respect. My machine runs smoother, has more power and consumes about one-third less gasoline than it did with my old carburetor. I believe you have discovered a carburetor that all owners of automobiles should use.

Very respectfully,
M. J. SPENCER, M. D.

IS IT POSSIBLE TO OFFER MORE?

Users of Ford, Autocars and Rambler cars can save money and increase their pleasure by using the "Universal."

SPEED CHANGING PULLEY COMPANY
INDIANAPOLIS, IND.

Fishing Rods

SPLIT BAMBOO FLY.

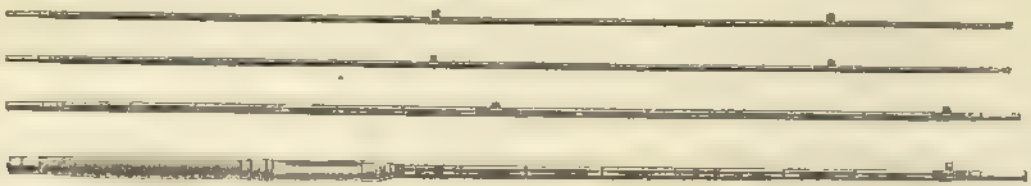
"Varney" rods have attained the highest type of perfection in rod making, and will satisfy the most exacting customer.

In constructing the "Varney" rods only the best selected Calcutta bamboo is used, one cut of about five feet of the large end only is used. This is split or rifted by hand with a knife, following the grain of the bamboo, thus avoiding any cross-grain. The enamel or outside covering of the bamboo is left intact, except what is necessary to remove in finishing. The most important part in constructing split bamboo rods lies in shaping the sections before gluing so as to obtain the proper action and the strongest glue joint.

These rods are mounted with Varney's patent waterproof and resilient tongued ferrules. Ferrules are hand mandrel drawn from seamless 18 per cent German silver tubes, a process which makes the ferrules nearly as hard and springy as steel. The resilient tongue forms at the junction of the wood and metal a cushion by which the strain is transmitted gradually throughout the rod, thereby preventing the rod breaking at the ferrules. The exposed end of the glued sections in the ferrule is covered by a metal cap which prevents dampness from affecting the glue joints. Perhaps the best proof of the worth of our waterproof and resilient tongued ferrule lies in the fact that in its use of nine years we have yet to learn of the first instance of a "Varney" rod breaking at the ferrule, or the glue joint being damaged by moisture. The reel plate is made from the same quality metal as the ferrules, the rings and reel pocket are brazed with pure silver solder.

No.		Each
Varney	—Three Piece and Extra Tip, Best German Silver Mountings, Hand Made Reel Plate, Welted Ferrules, Solid Cork Grip, ...	$40.00

SPLIT BAMBOO BAIT.



No.		Each
500	Three Piece and Extra Tip, Calcutta Bamboo. Full Nickel Plated Mountings, Solid Metal Reel Plate, Silk Wound Spiral Guides and Silk Wound at Intervals, Cork Grip, Finely Varnished, Lengths 9 to 10½ feet, ...	$1.30
	Put up in a Wood Form and Cloth Bag.	
010C	Three Piece and Extra Tip, Cork Grip. Full Nickel Plated Mountings. Solid Metal Reel Plate. Improved and Welted Ferrules, Silk Wound German Silver Snake Guides and Closely Wrapped in Two Colors, Varnished, Lengths 9 and 9½ feet, ...	2.70
	Put up in a Covered Wood Form and Cloth Bag.	
770	Three Piece and Extra Tip, Cork Grip, Nickel Plated Mountings, Metal Reel Plate, Improved Ferrules, Silk Wound Rings and Keepers, Closely Wound with Red, Black and Green Silk, Varnished, Lengths 9 to 10½ feet, ...	3.00
	Put up in a Flannel Covered Form and Cloth Bag.	
S10C	Three Piece and Extra Tip, Cane Grip, Full Nickel Plated Mountings, Solid Metal Reel Plate Improved Ferrules, Welted, Silk Wound German Silver Snake Guides and Fancy Cluster Windings of Two Colors Silk, Finely Varnished, Lengths 9 and 9½ feet, ...	5 00
	Put up in a Velvet Covered Form and Canvas Bag.	
670C Combination	Three Piece and Two Extra Tips, one Stout and One Extra Heavy to fit the Butt, Combination makes a one piece Rod 3¼ feet long, a two-piece Rod 6½ feet long and a three piece Rod 9½ feet long, and a two piece light Rod 7 feet long, Solid Metal Reel Seat above the Hand, not reversible, Cane Grip. Full Nickel Plated Mountings. Improved Welted Ferrules. German Silver Snake Guides. Very Closely Wound with Green Silk. Finely Varnished, .	10 00
	Put up in a Green Felt Covered Form in a Canvas Bag.	

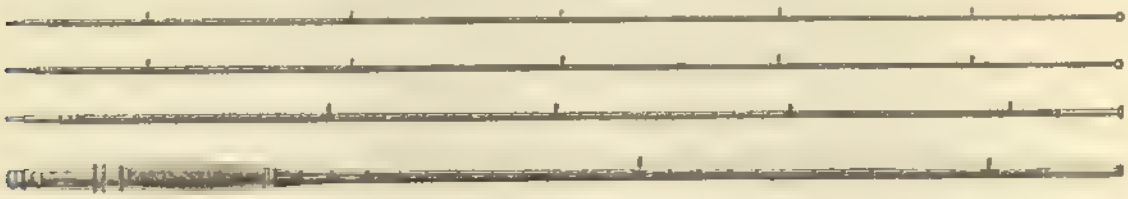
Fishing Rods

SPLIT BAMBOO FLY.

No. Each

U01800½ Fine Hand Made Rod, Three Piece and Extra Tip, Six Strip Selected Calcutta Bamboo, Bamboo Extends Full Length of Grip, Solid Cork Grip, Full German Silver Mountings, Patent Universal Locking Band, Welted Ferrules, Silk Wound Snake Guides, Closely Wound in Clusters with Red and Lemon Silk, Lengths 9 to 10½ feet, 10-foot Rod Weighs about 6 ounces, ... $18.00

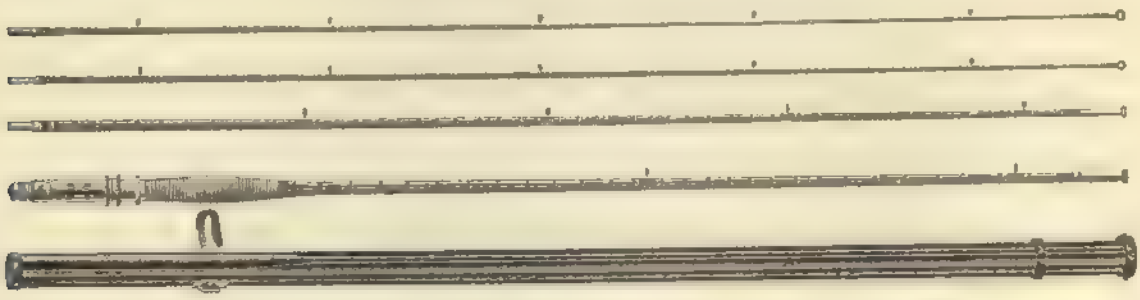
Put up in a Velvet Covered Form in a Canvas Bag



No. Each

2000½ Fine Hand Made, Three Piece and Extra Tip, Finest Fibre Calcutta Cane, Hand Made German Silver Mountings and Surrated Ferrules, Wound at Close Intervals with Fine Silk, Silk Wound Rings and Keepers, Finished with Best Flowing Varnish, Lengths 9 to 10½ feet, 9½ foot Rod Weighs 6 ounces, ... $24.00

Put up in a Velvet Covered Form in a Canvas Bag



No. Each

3500½ Fine Hand Made Eight Strip Rod of Fine Selected Calcutta Bamboo, Cork Grip, Hand Made Solid German Silver Mountings, Solid Metal Reel Seat, and Fine Serrated Ferrules, Silk Wound Rings and Keepers, Wound at Close Intervals with fine Scarlet Silk, Finished with Best Rod Varnish, Length 9 to 10½ feet, 9½ foot Rod Weighs 6 ounces, ... $28.00

Put up in a Velvet Covered Form and Canvas Bag.

The "Silkien" rod is made by hand from the most carefully selected and thoroughly seasoned split Calcutta Bamboo. When the rod is ready for the varnish and before mounting each joint is tightly and closely wound from end to end with fine silk thread. It then undergoes a treatment which firmly binds the silk to the bamboo, and makes the winding so transparent that the grain and color of the bamboo can be clearly seen underneath it. The finish is equal to that of any rod made.

The invisible winding is covered by patent, and its advantages are: It greatly strengthens the rod while making it possible to lessen the weight. It increases and protects the elasticity of the rod. It clasps and protects the glue joints at all points so that they cannot separate. The silk is a holding ground for the varnish.

No. Each

Silkien—Three Piece and Extra Tip, Best German Silver Mountings, Hand Made Reel Plate, Welted Ferrules, $36.00

Put up in a Felt Covered Wood Form and Canvas Bag.

VIM ENGINE ON SUB-BASE.

THROTTLING TYPE.

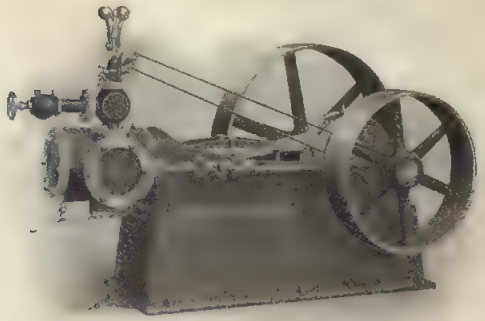


FIG 2291.

These up-to-date engines are built with a balanced slide-valve—viz., a flat casting working between seat and pressure plate (this plate is maintained at proper distance by strips of iron slightly thicker than the valve, and the wear of valve is corrected by scraping these strips), locomotive guides, steel crank-shaft with disc counterweights, and forged-steel connecting rod fitted with crank-pin boxes of cast-iron, lined with genuine babbitt, and provided with approved method of adjustment. The bearings are large, as reference to tables of dimensions will show, and the wearing surface very liberal throughout

When ordered complete, fixtures include two pulleys, governor, governor-belt, throttle-valve, two wrenches, oil cups, sight feed, lubricator, and cylinder drip-cocks operated by a single lever. Sub-base, foundation bolts and washers are subject to order as extras at an additional charge. All foundation bolts for these engines, unless otherwise ordered, are three feet to five feet in length (depending on size of engine), suitable for brick, stone or cement foundation

No. of Size	Cylinder		Horse Power as Usually Rated	Revolutions per Minute	Pulleys		Diameter Steam Pipe	Diameter Exhaust Pipe	Length Over All Including Pulleys		Width Over All Including Pulleys		Weight with Sub Base	Weight without Sub-Base
	Diam Inches	Stroke Inches			Diam Inches	Face Inches			Ft.	In.	Ft.	In.		
3	7	8	10	240	20 34	9½	2	2½	5	10½	3	8½	1750	1475
5	8	8	15	240	20 34	9½	2	2½	5	10½	3	8½	1775	1500
6	8	10	20	230	28 40	10½	2	2½	6	11	3	10	2000	2500
7	9	10	25	225	28 40	10½	2	2½	6	11	3	10	2050	2550
8	10	12	30	185	36 54	11½	2½	3	8	7	4	7	4400	3750
9	11	12	35	175	36 54	12½	2½	3	8	7	4	7	4500	3850
10	12	15	40	135	40 66	13½	3	3½	10	4	5	6	6800	5750
11	13	15	50	140	40 66	15½	3	3½	10	4	5	9	6900	5850
13	14	18	70	125	72 48	10½	4	5	11	11	6	6	9550	8050
13	16	18	85	120	72-48	20½-16½	4	5	11	11	6	10	9700	8200

These engines can be set to run either "over" or "under," as desired. Unless otherwise ordered, they will always be arranged to run "over."

REGAL ENGINE—AUTOMATIC TYPE.

FIG. 2292.

The Regal engines were first introduced in the throttling type, and now, fitted with a shaft governor, are offered to the trade in response to a demand for a moderate speed, moderate priced, thoroughly up-to-date, side-crank automatic engine. The valve, fully balanced, gives a double opening for steam admission, and is a flat casting working between seat and pressure plate, this plate being maintained at proper distance by strips of iron slightly thicker than the valve, and the wear of valve is corrected by scraping these strips. The governor is similar to that used on the Vim Automatic Engine.

When ordered *complete*, fixtures include one pulley, outboard bearing, complete set of sight-feed oil-cups, including wiper attachment for crosshead pin and centrifugal oiling device for crank-pin with floor-stand, sight feed lubricator, and cylinder drip-cocks operated by single lever. Foundation bolts and washers are furnished at an extra price. All foundation bolts for these engines, unless otherwise ordered, are four feet eight inches to six feet in length (depending on size of engine), suitable for brick, stone or cement foundation. *Anything ordered, not included in the above list of fixtures, will be charged as an extra*

No. of Size.	Cylinder.		Rated Horse-power at about ¼ Cut-off with 80 lb. Initial Pres. Based on 88-lb. M. E. P.	Revolutions per Minute.	Pulley.		Diam. Steam Pipe.	Diam. Ex. Inlet Pipe.	Length Over All Including Pulley.		Width Over All.		Weight.
	Diam. Inches.	Stroke. Inches.			Diam. Inches.	Face. Inches.			Feet.	Inches.	Feet.	Inches.	
3	12	15	60- 70	190-215	72	12½	3	3½	10	7	6	8	5400
4	13	15	70- 80	190-215	72	14½	3	3½	10	7	6	8	5600
5	14	18	85- 95	160-180	84	17½	4	5	12	5	8	7	6900
6	16	18	110-120	160-180	84	23¼	4	5	12	5	8	7	6400
7	19	22	160-185	135-150	96	23	5	6	15	6	9	9	18000
8	23	23	210-235	135-150	96	26	6	7	15	6	9	9	18500

These engines can be set to run either "over" or "under" as desired. Pulleys of larger diameter or wider face than above specified, if ordered, will be charged extra. When so ordered, we can furnish an adjustable sole plate for outboard bearing at an extra price.

Sizes Nos. 3 and 4 can be furnished right-hand only as shown by engraving; sizes Nos. 5, 6, 7 and 8 can be furnished either right or left hand. Unless otherwise ordered they will be furnished right hand.

Unless otherwise specified these engines will always be arranged to run "over" and at the lowest number of revolutions given above.

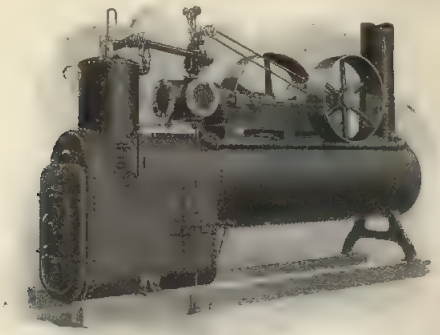


FIG 2298

VIM PORTABLE—THROTTLING TYPE ENGINE.

This cut illustrates the Vim Portable (Nos. 10 and up have an additional leg under shell of boiler), which consists of the above engine in connection with the regular portable boiler, on following pages. When ordered *complete*, all sizes are furnished with two pulleys, governor, governor-belt, throttle-valve, two wrenches, oil-cups, including sight-feed lubricator, smokestack with guys, grates, injector steam-gauge, water-gauge fitted with stand pipe three ball and lever gauge-cocks, pop safety-valve, feed-valve, check-valve and blow-off cock, with piping to attach these fittings in our usual manner. The boilers are all first tested to 150 pounds hydrostatic pressure per square inch, and afterward under steam pressure of 100 pounds per square inch, and the engine run for several hours.

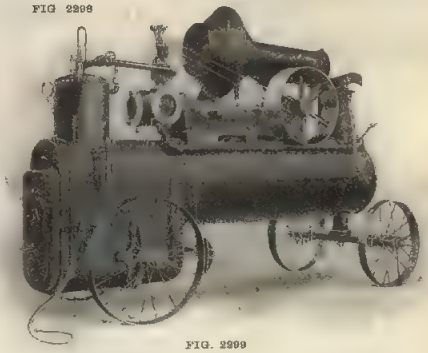


FIG. 2299

VIM AGRICULTURAL THROTTLING TYPE ENGINE.

This cut shows the Vim Agricultural — viz., engine and boiler same as furnished with above portable outfit, except mounted on four wheels

VIM PORTABLE AND AGRICULTURALS—THROTTLING TYPE ENGINE.

No. of Size.	Horse power as Usually Rated.	ENGINE. Revolutions.	Cylinder Diam. Inches.	Cylinder Stroke Inches.	Pulleys. Diam. Inches.	Pulleys. Width Face Inches	BOILER. Shell Diameter Inches.	Furnace. Length Inches	Furnace. Width Inches	Furnace. Height above Grates Inches.	Tubes. No.	Tubes. Diam. Inches.	Tubes. Length Inches.	Smokestack. Diam. Inches.	Smokestack. Height from Grate to Base Inches.	Weight Complete for Portable.	Weight Complete for Agricultural.
3	10	240	7	8	30-34	9½	29	36	24	23	23	3	3 6 13	19		5115	6775
5	15	240	8	8	30-34	9½	33	38	26	26	27	3	80 14	19		5900	7150
6	20	230	8	10	28-40	10½	33	52	27	25	30	3	88 16	24		7800	8950
7	25	225	9	10	28-40	10½	35	52	29	26	34	3	94 16	24		8800	9900
8	30	185	10	12	36-54	11¼	37	52	31	27	39	3	100 17¼	24		10550	11650
10	40	185	13	15	40-66	13½	39	52	33	35	45	3	124 18	24		15050	14800
11	50	140	13	15	40-66	15½	44	61	38	36	48	3	132 23	28		17500	17200

CLASS B COMBINED VERTICAL ENGINE AND BOILER.

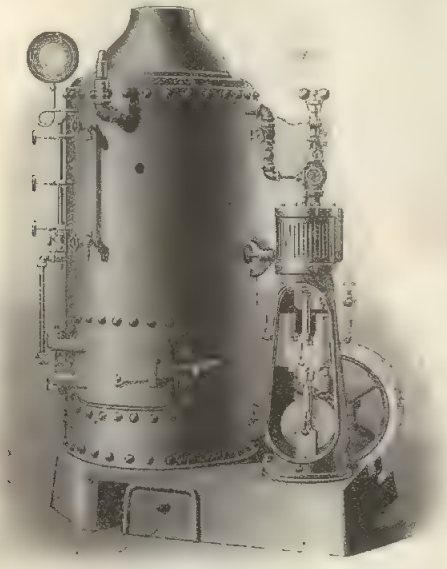


FIG. 2300

Illustration shows the Class B Vertical Engine (complete with Governor and Oil Cups), Boiler, and Injector, combined on a single cast-iron base, with piping complete, ready for use.

We call attention to the fact that, with above combined outfit, we furnish a Boiler with a larger capacity than the Engine. By this means constant attention to the Boiler, when working the Engine to its full capacity, is not so necessary.

Built in five sizes, viz.: One-and-a-half, three, five, seven, and ten horse-power.

Horse-Power as usually rated	1½	3	5	7	10
Size of Cylinder, inches	3 x 3	4 x 4	5 x 5	5 x 6	7 x 7
Size of Boiler, inches	20 x 36	24 x 48	27 x 60	30 x 72	36 x 72
Number of 2-inch Tubes	16	24	30	42	60
	Ft. In	Ft In	Ft In	Ft In.	Ft. In
Height from Floor to Top of Boiler	3 8	4 8	6 9	6 10	6 10
Floor Space required, inches	22 x 33	27 x 40	31 x 43	36 x 55	42 x 66
Shipping Weight, pounds	650	1,000	2,100	2,900	3 600

SINGLE CYLINDER ENGINE.

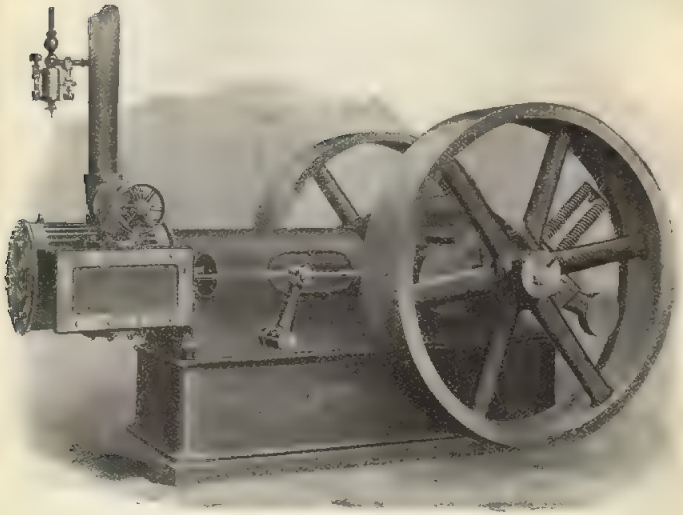


FIG 2289.

Horizontal Single Cylinder Ball Automatic Center Crank Self-Oiling (Belted) with Sub-base.

VIM ENGINE ON SUB-BASE—AUTOMATIC TYPE.

FIG. 2290.

Or, these engines is used an approved type of shaft governor, combining the inertia and centrifugal principles in an extremely simple construction. By simply altering the tension of the spring, without in any way changing the weight, the speed of the engine can be changed through a wide range.

When ordered *complete*, fixtures comprise two driving-pulleys, throttle-valve, two wrenches, complete set of sight feed oil cups, including wiper attachment for crosshead, sight feed lubricator, and cylinder drip-cocks operated by single lever.

The sight feed for lubricating the piston is from the sight feed upon the case through tube to a groove in the side of the disc, from which a hole passes through directly to the piston through one-half inch in diameter, drilled diagonally from groove in disc to center of pin. This arrangement permits feeding any required amount of oil to the piston without waste and insures positive lubrication.

Sub base, foundation bolts and washers are furnished at an extra price. All foundation bolts for these engines, unless otherwise ordered, are three feet to five feet in length (depending on size of the engine), suitable for brick, stone or cement foundation. *Anything ordered, not included in above list of fixtures, will be charged as an extra.*

No. of Size	Cylinder Diameter Inches	Cylinder Stroke, Inches	Rated Horse Power Guaranteed on Cut-off with 80 lbs. Initial Pressure per sq. in. M. E. P.	Revolutions per Minute	Pulleys Diameter Inches	Pulleys Face Inches	Pulleys Size of Shaft	Diam. Steam Pipe	Diam. Exhaust Pipe	Length Over All Including Pulleys Feet	Length Over All Including Pulleys In	Width Over All Including Pulleys Feet	Width Over All Including Pulleys In.	Weight with Sub-Base	Weight without Sub-Base
4	7	8	15-18	300 325	34	9½	1	2	2	5	10½	3	8½	2675	800
5	8	8	20-23	300 325	34	9½	1	2	2	5	10½	3	8½	2100	1825
6	8	10	25-28	275 300	40	10½	1	2	2	6	11	3	10	3300	2800
7	9	10	30-35	275 300	40	10½	1	2	2	6	11	3	11	3450	2950
8	10	12	40-45	240 265	54	11½	1	2½	2½	8	7	4	7	5000	4150
9	11	12	50-55	240 265	54	11½	1	2½	2½	8	7	4	8	5200	4300
10	12	15	60-70	190 215	66	13½	1	3	3½	10	4	5	5	8400	6650
11	13	15	70-80	190 215	66	13½	1	3	3½	10	4	5	8	8400	7150
12	14	18	85-95	160-180	72	16½	1	4	5	11	11	6	6	6000	9300
13	16	18	110-120	160 180	72	16½	2	4	5	11	11	6	10	10650	9150

These engines can be set to run either "over" or "under," as desired.

Unless otherwise specified, these engines will always be arranged to run "over," and at the lowest number of revolutions given above.

Pulleys of larger diameter or wider face than above specified, if ordered, will be charged extra.

The governor pulley cannot be made of less diameter than standard.

Fog Horns

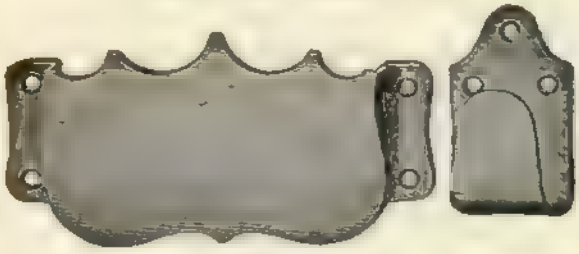
	Tin With Wood Mouthpiece and Reed	
Length, Inches	20	24
Per Doz	$6 00	6.50

	Brass With Wood Mouthpiece and Reed
Length, Inches	24
Per Doz	$20.00

Launch Air Whistles

No.	Standard, Brass	Each
1	Diam. 4 in., Length 15½ in.	$10 00
2	Diam. 4 in., Length 22 in.	12.00

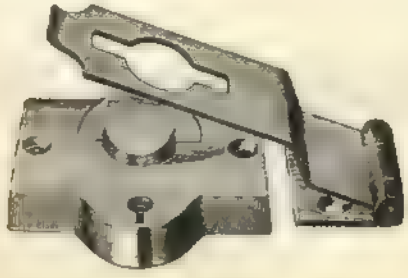
Axe Brackets



Polished Brass

	5	6
Length Pocket, Inches		
Per Doz	$12.00	15.00

Hinge Hasp and Lock



No.	Polished Brass, For Cuddy Doors	Per Doz
840A	3¼ in. long, 2 in. Wide	$12.00

Fenders

No. 611—Canvas, Cork Filled

	3×12	3½×15
Size, Inches		
Each	$0.50	.75

No. 612A—Oblong, Netted Manila Rope

	3×12
Size, Inches	
Each	$1.50

No. 614—Leather, Cork Filled

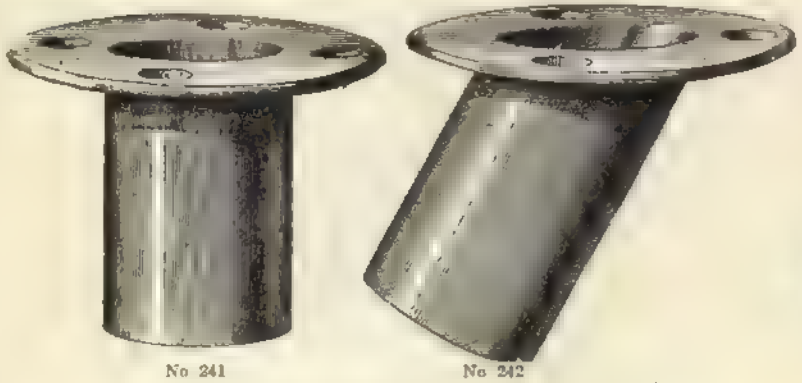
	5
Diam., Inches	
Per Doz	$7.25

Hooks and Eyes

Brass

	Per Gross
Hooks and Eyes, Complete	$1 85
Hooks only	1.30

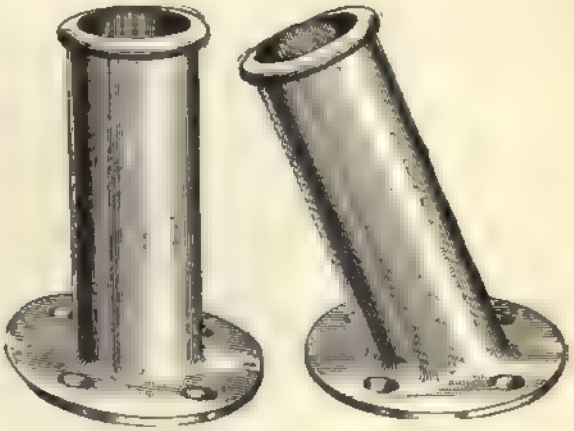
Flag Pole Sockets



No 241 No 242

Socket, Polished Brass

No. Size Inside Diam., Inches		1	1¼
241—For Bow	Each	$0.50	.60
242—For Stern	Each	.60	.70



No. 248 No. 247

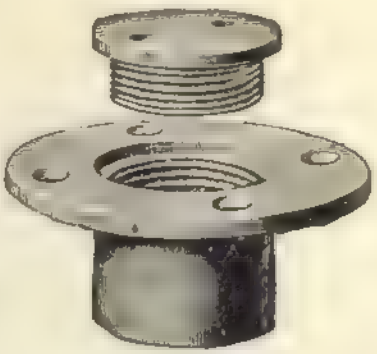
Upright, Polished Brass

No. Size Inside Diam., Inches		1	1¼
248—For Bow	Each	$1.00	1.10
247—For Stern	Each	1.30	1.40

Deck Plates

Durkee's Patent Deck Plate
or Hand Hole Plate to Gasoline Tank

No.	Each
226G—Polished Brass, Diam. Opening 3½ in	$2.70



Brass Deck Plates
Thread Tapped for Iron Pipe, with Key

For Pipe, Inches	1	1¼	1½	2
Each	$1.20	1.50	2.00	2.50

Boat Hooks

No. 466—Navy, Ball Points, Single Hook

	Per Doz.
Galvanized Iron, For 1¼ in. Pole	$5 50
Polished Brass, For 1¼ in. Pole	10 75

No. 468—Sharp Point

	Per Doz.
Galvanized Iron, For 1¼ in. Pole	$3 60
Polished Brass, For 1¼ in. Pole	10.50

CARPET BEATERS.

Dandy Rattan . . . . . Mfrs. price, per doz., $5.00 Our net price, each, $0.25
Packed ½ doz. in bundle.

RUG BEATERS.

Boss.

Rattan.

"Boss" Wire packed ½ doz. in box	Mfrs. price per doz., $5.00	Our net price, each,	$0.25
No. 21. Rattan, packed ½ doz. in bundle	3.00	" "	.15
" 23. " " "	1.10	" "	.10
" 24 Wire Board Rattan	5.00	"	.25
" 72 " "	3.50	" "	.20
" 73. " "	4.50	" "	.25
Dandy Rattan.	5.5	" "	.30
	1.50	" "	.10

BRAIDED WIRE CARPET BEATER.

Braided Wire Carpet Beater . . . . . Mfrs. price, per doz., $2.50 Our net price, each, $0.15

EGG BEATERS.

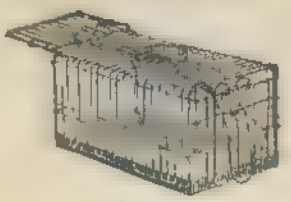
Small.

Medium.

Perfection.

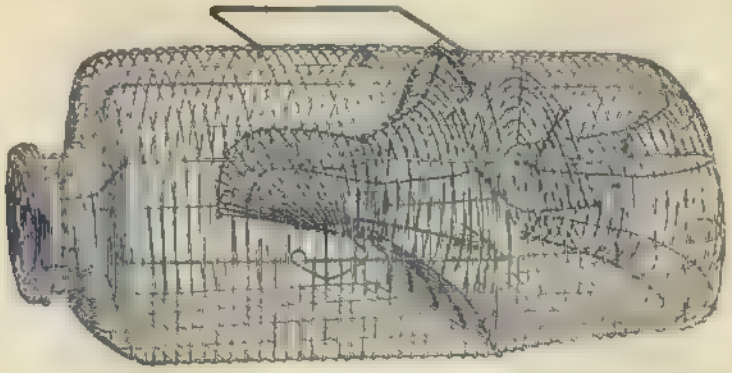
Dover Egg Beaters, small, packed 1 doz. in box	Mfrs. price, per doz., $1.50	Our net price, each $0.10
" " " medium " " "	4.50	" " .25
Perfection Egg Beater No. 30, Improved	2.00	" " .15

RAT TRAPS.



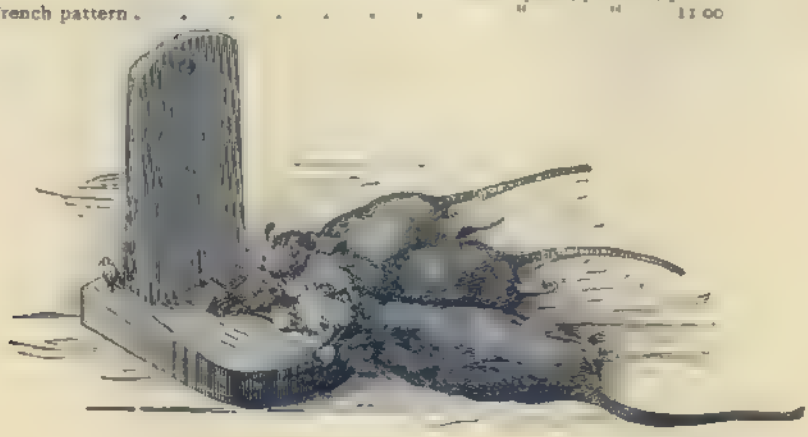
Square wire rat trap.

Square wire with patent holdfast lock . . . Mfrs. price, per doz., $6.80 Our net price each, $0.35
Packed ½ doz. in crate.



French rat trap.

No. 3. French Wire Mfrs. price, per doz., $12.80 Our net price, each, $0.75
" 3. American Wire, French pattern . . . . . " " 11 00 " " .40



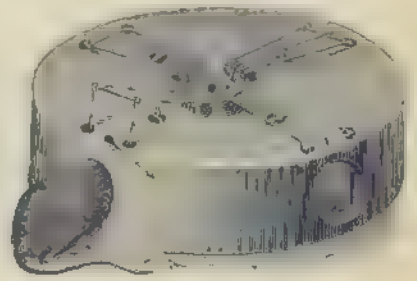
Erie rat trap.

Erie . . . . . Mfrs. price, per doz., $3 50 Our net price, each, $0 20
Packed 1 doz. in crate

MOUSE TRAPS.

Wheel.

No. 5. French.



Choker.

Wheel. Packed ½ doz. in bundle . . . . . Mfrs price, per doz , $3 50 Our net price, each, $0.20

	Mfrs. price,	Our net price,		Mfrs. price,	Our net price,
No. 5. French Wire . .	per doz., $6.50	Each, $0.35	5 hole wood Choker	per doz , $2 50	Each, $0 10
" 5. American Wire .	" 4.50	" .30	6 " " "	" 2 65	" 11
2-hole wood Choker . .	" [illegible]	" [illegible]	5 " [illegible] " . .	" 2.65	" .11
4 " " " . .	" 1 8.	" 10			

INDURATED FIBRE WARE.

"Star" pail.

Packed ½ doz. in crate.

"Star," standard size	12 quarts
Mfrs price, per doz.	$3.60
Our net price, each	.30

Wash Basin.

No. 1, packed 1 doz. in crate.

2, " 2 " "

		Mfrs price, per doz.	Our net price, each.
No. 1.	13½ in.	$2.40	$0.20
"	"		

Spittoon.

Packed ½ doz. in crate.

			Mfrs. price, per doz.	Our net price, each.
No. 1.	5½ in. high,	13 in. diam.	$6.00	$0.50
" 2.	5¼ "	11 "	4.80	
"	"			

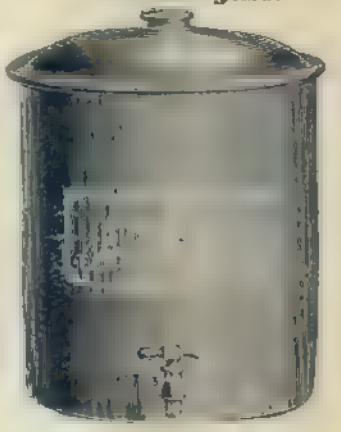
Baby Bath or Foot Tub, Plain.

6 in. deep, 14 in. wide, 19 in. long

Packed ¼ doz. in crate

Mfrs price, per doz.	$10.80
Our net price, each	.00

Ice Water Jars.



Packed 1 in crate.

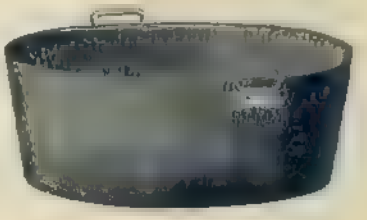
		Mfrs. price, per doz., Plain.	Mfrs. price, per doz., Imitation of Oak.	Our net price, each, Plain.	Our net price, each, Imitation of Oak.
No. 1	11 in. high inside	$14.00	$20.00	$1.17	$1.67
"	13 " "	17.00	23.00	1.42	1.92
"	10½ " "	20.00	27.00	1.67	2.25
"	12 " "	23.00	30.00	1.92	2.50
"	14 " "	26.00	33.00	2.33	2.75

Wash Tubs.

No. 0, 1, 2, packed ¼ doz. in crate.

				Mfrs. price per doz.	Our net price, each.
No. 0.	23½ in. diam.,	13	in. deep	$18.00	$1.50
" 1.	20½ "	12	"	14.40	1.20
" 2.	19 "	10½	"	12.60	1.05
" 3.	18 "	9½	"	11.40	.95

Keelers.



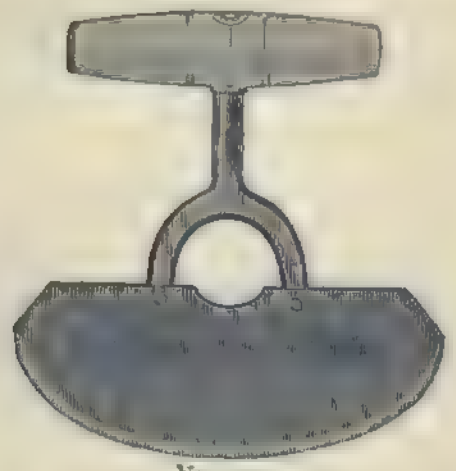
			Mfrs. price per doz.	Our net price, each.
No. A	7 x 20		$8.40	$0.70
" B.	7 x 18½	"	7.40	.63
" C.	7 x 17½	"	7.00	.58
" 1.	6½ x 17	"	6.60	.55
" 2.	6 x 15	"	5.60	.47
" 3.	5 x 13	"	4.60	.38
" 4.	4 x 12	"	3.80	.32

Nos. A, B, C, and 1, in ½ doz. crates; others in 1 doz.

CHOPPING KNIVES.

No. 2.

No. 2. Steel Blade . . . . . Mfrs. price, per doz., $1 80 Our net price, each, $0.10
Packed 1 doz. in box.



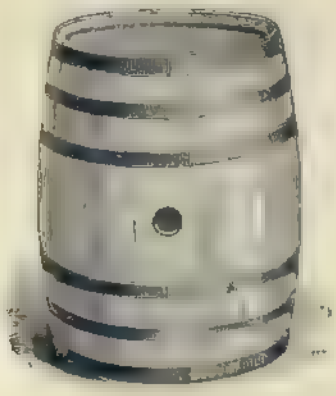
No. 150.

No. 150. Steel Blade . . . . Mfrs. price, per doz., $3.50 Our net price, each, $0.20
Packed 1 doz. in box.

No. 20.

No. 20. Steel Blade . . . . . Mfrs. price, per doz., $6 20 Our net price, each, $0 35
Packed ½ doz. in box.

OAK KEGS.



5 gal. Kegs	Mfrs. price, per doz., $12.80	Our net price, each, $1.00
10 " "	" " 17.00	" " 1.35

WIRE FLY KILLER.

Wire Fly Killer	Mfrs. price, per doz., $1.75	Our net price, each, $0.10

Packed 1 doz. in box.

FLY DRIVER.

Palm Leaf, light	Mfrs. price, per doz., $0.95	Our net price, each, $0.05
" heavy	" " 1.80	" " .10

Packed 1 doz. in bundle.

CHOPPING KNIVES.

No. 1.

No. 1 Steel blade	Mfrs. price, per doz., $0.90	Our net price, each, $0.05

Packed 1 doz. in box.

LAWN CROQUET.

No. 8.

Rock maple balls and stakes, striped and varnished. Beaded mallet, oiled.

		Mfrs. price.	Our net price.
No. 8.	8 Ball Set . .	per doz., $18.00	Each, $1.00

No. 21.

Rock maple balls and stakes, striped and varnished, beaded mallet.

		Mfrs. price.	Our net price.
No. 21.	8 Ball Set . .	per doz., $19 60	Each, $1.25

Nos. 5 and 5x.

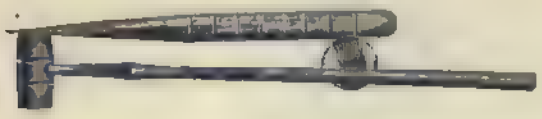
Professional, full varnished and striped. Long mallets and short handles.

		Mfrs. price.	Our net price.
No 5.	4 Ball Set . .	per doz., $24.00	Each, $1.35
" 5x.	8 " " . .	" 33 60	" 1.75

No. 4.

Full varnished, selected polished balls, white maple handles.

		Mfrs. price.	Our net price.
No. 4.	8 Ball Set . .	per doz., $27.60	Each, $1.50



No. 3.

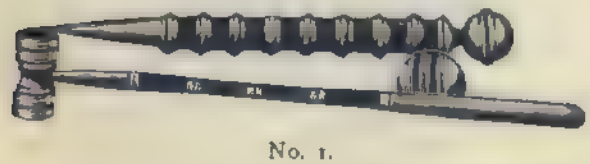
Highly polished balls, mallets 5½ inches long. three stripes on balls, fancy 8-color stakes.

		Mfrs. price.	Our net price.
No. 3.	8 Ball Set .	per doz., $3[illegible]	Each, $1.75

No. 2.

Professional, turned by hand, short maple handles, mallets 10 inches long, painted, striped and varnished. This set is much preferred by professional players.

		Mfrs. price.	Our net price.
No. 2.	4 Ball Set	per doz., $38.40	Each, $[illegible]



No. 1.

Turned by hand, 8 finely painted mallets 5½ inches long, 8-color stakes, heavy galvanized arches.

		Mfrs. price.	Our net price.
No. 1.	8 Ball Set . .	per doz., $38.40	Each, $2.00

XOX.

Rock maple, polished, all hand turned, highly finished with genuine white shellac and lathe polished. Mallets 9 inches long, 2 large beaded 4-color stakes, with heavy galvanized arches.

		Mfrs. price.	Our net price.
No. XOX.	8 Ball Set . .	per doz., $60.00	Each, $3.00

OAK BUTTER BOXES.

10¾ in. with bail	Mfrs. price, per doz.,	$ 8.00	Our net price, each, $0.50
12 " " "	" "	9.20	" " .60
14 " " "	" "	10.00	" " .65
14 " without bail	" "	10.00	" " .65
16 " " "	" "	11.00	" " .75
18 " " "	" "	12.80	" " .90

Paked ½ doz. in crate.

BAIL BOXES.

	Mfrs. price.	Our net price.
Nest of 2	per doz., $8.00	Each, $0.50
Small	" 5.00	" .25
Large	" 5.60	" .30

Packed ½ doz in crate.

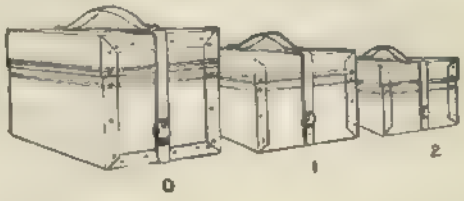
COVERED BUCKETS.

		Mfrs. price.	Our net price.
Best.	Nest of 3	per doz., $14 00	Each, $1.00
"	" " 2 (small and medium)	" 9.20	" .60
No. 1.	Large, 50 lb.	" 8.00	" .50
" 2.	Medium 25 "	" 6.85	" .40
" 3.	Small 12 "	" 5.00	" .25

COMMON ROUND BUTTER BOXES.

	Mfrs. price	Our net price
5 lb.	per doz., $1.00	per doz., $0.70
10 "	" 1.50	" 1.20

LUNCH BOXES.



"Brownie" No. 2	Mfrs. price, per doz.,	$1.70	Our net price, each, $0.10
" " 1	" "	2.20	" " .15
" " 0	" "	2.70	" " .20

Packed ½ doz. nests in bundle.

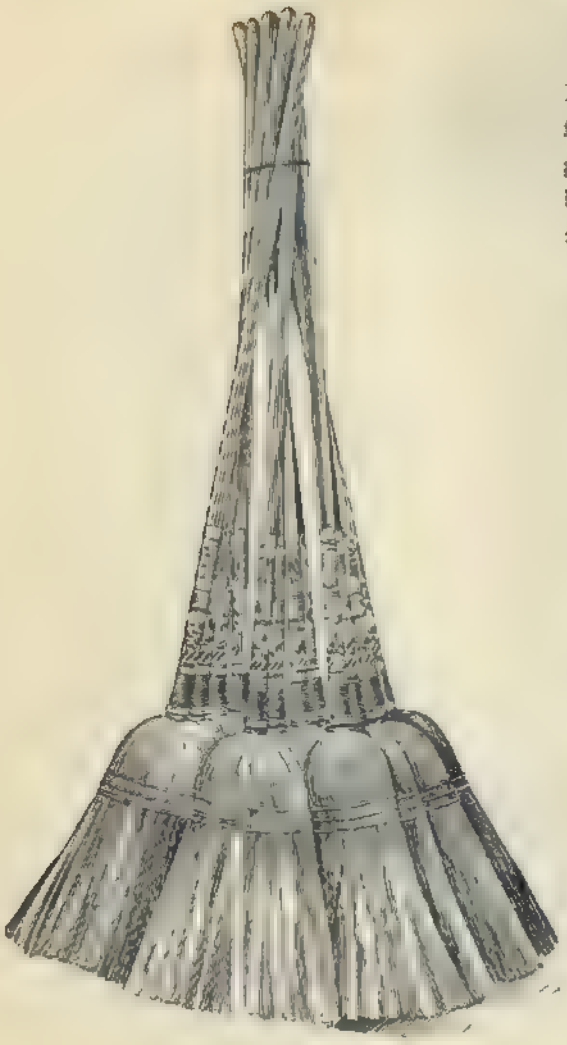
Folding, open.

Folding, closed.

Gilman Folding, black . . . . . Mfrs. price, per doz., $4.20 Our net price, each, $0.25

Packed 1 doz. in box.

BROOMS.

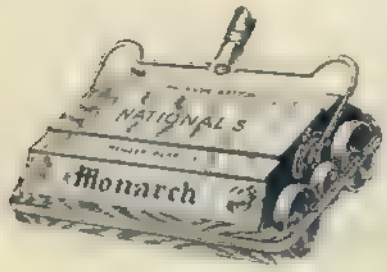


Nancy Hanks Brooms

We wish to call special attention to our Nancy Hanks Parlor Brooms, which we have had manufactured expressly for us to meet a large and growing demand for a strictly high grade parlor broom. It is made from the finest selected broom corn, with extra varnished maple handle. Weight, 24 lbs. to the dozen.

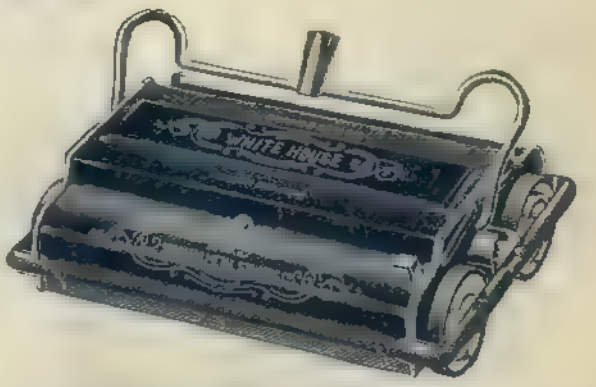
		Mfrs. price, per doz.	Our net price, each.
No.	"Nancy Hanks," 3 sewed cap and velvet, varnished handle	$6.00	$0 [illegible]
" 7.	"Nancy Hanks," 4 sewed cap and velvet, varnished handle	6.50	.40
" 8.	"Nancy Hanks," 4 sewed cap and velvet, varnished handle	7.00	.45
" 6.	"Breck's Special," 3 sewed, spiral velvet, varnished handle	5 25	.30
" 7.	"Breck's Special," 4 sewed, spiral velvet, varnished handle	5 75	.35
" 8.	"Breck's Special," 4 sewed, spiral velvet, varnished handle	6 25	.40
No. 6.	"Whytmyre," 3 sewed, best parlor, spiral velvet, varnished handle	6.00	.35
" 7.	"Whytmyre," 3 sewed, best parlor, spiral velvet, varnished handle	6.50	.40
" 5½	"Little Pink" 3 sewed, long spiral velvet, varnished handle	5.00	.30
" [illegible]	"Leader," 3 sewed spiral velvet, varnished handle	4.50	.25
" 7.	"Leader," 4 sewed, spiral velvet, varnished handle	5 00	.30
" 8.	"Leader," 4 sewed, spiral velvet, varnished handle	5 50	.35
" 6.	"U. S.," 3 sewed, cap and varnished handle	3.50	.25
" 6.	4 sewed, cap and plain handle	4 00	.25
" 6.	Deck, 3 sewed, plain handle	5.00	.30
" 7.	" 4 " " "	5.50	.35
" 8.	" 4 " " "	6.00	.40

CARPET SWEEPERS.



The "Monarch" has dust proof "Roller Bearings" consisting of three little steel rollers placed within the hub, held apart by a separator, doing away with all friction, making it the easiest running Carpet Sweeper made.

Mfrs. price, per doz., $14.00 Our net price, each, $2.25



Our White House Steel Carpet Sweeper, finished in high grade colored enamels.

The only noiseless, Sanitary Sweeper made, and is recommended by Medical Experts as the best adapted for use in the sick room or hospitals.

Mfrs. price, per doz., $46.00 Our net price, each, $2.50

Oils

Standard Floor Dressing

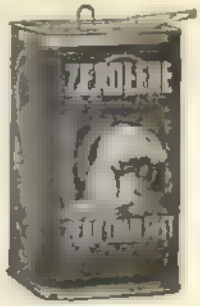
Size Cans. .	1 Gal.	5 Gal.
Per Gallon..	$1 50	1 10

Household Lubricant

Size Can	¼ Pint	½ Pint
Per Doz. Cans	$1.60	2.00

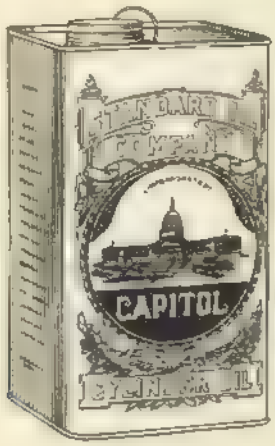
Ruddy Harvester Oil

Size Cans. . .	1 Gal.	5 Gal.
Per Gallon.	$0 70	55



Zerohne Oil

Size Cans.	1 Gal.	5 Gal.
Per Gallon.	$1.25	1.10



Capitol Cylinder Oil

Size Cans. .	1 Gal.	5 Gal.
Per Gallon.	$1 00	85

Standard Gas Engine Oil

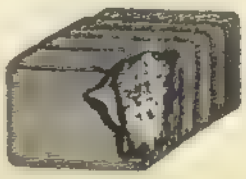
Size Cans.	1 Gal.	5 Gal.
Per Gallon.	$0.85	70

Axle Grease

Mica

1 Pound Cans, 3 Doz. in a Case	Per Case,	$4 00
10 Pound Kits	Per Kit,	1 00
25 Pound Kits	Per Kit,	2 00

Cotton Waste



	Per Pound
Pearl—Extra Quality White, 10 lb. Package	$0.25
Pearl Extra Quality White 25 lb. Package	.24
No. 1—White, 100 lbs. in a Bale	.20

Le Pages Liquid Glue

Tube

Bottle

Patent Can

In Self Sealing Tubes

	Per Gross
1 Ounce Tubes	$12 75

Each Tube in a Carton. Two Doz. in a Box

In Bottles

	Per Gross
1 Ounce Bottles	$12 75
2 Ounce Bottles....	19.80

One Doz. in a Box

In Patent Cans

	Per Doz.
½ Gill Cans (1 Doz. in a Box)..	$1 65
1 Gill Cans (1 Doz. in a Box .	2 20
½ Pint Cans (2 Doz. in a Box)	3 25
1 Pint Cans (1 Doz. in a Box). .	5 40
1 Quart Cans (1 Doz. in a Box).	9 50
½ Gallon Cans (½ Doz. in a Box).	18 50
1 Gallon Cans (½ Doz. in a Box).	36 00

Dry Glue

No.	Per Pound
1—White, Extra Quality, for Fine Cabinet Work or Kalsomine	$0.50
2—Medium Dark. Suitable for Cabinet Makers and General Woodwork	.40
3—Dark, Good Quality, suitable for ordinary work	.30

In Barrels of about 250 Pounds

Metal Polish

Bennetts Brilliantshine

Size Cases	Quantities in Case	Weight per Case, lbs	Per Doz
½ Pint	3 Doz.	30	$3.50
1 Pint	2 Doz.	32	6.00
1 Quart	1 Doz.	31	12.00
½ Gallon	½ Doz.	32	18.00
1 Gallon	½ Doz.	57	36 00

Bennetts Paste Polish

Size Package	2 oz.	5 oz.	1 lb.
Per Doz. Packages	$1.00	2.00	4.00

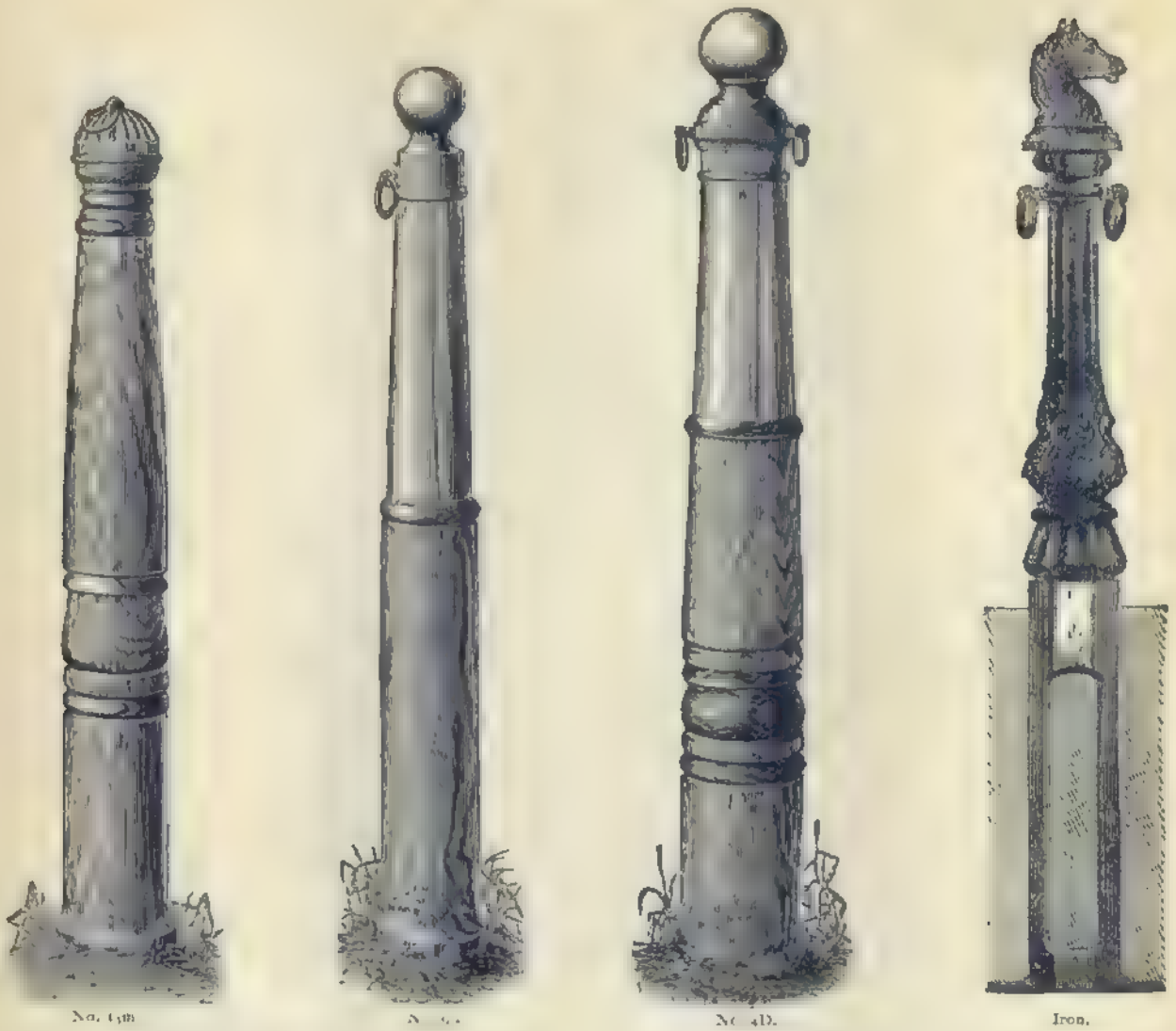
Skat

	Per Doz
Skat—For Use in Foundries, Machine Shops, Stores, Etc	$1.80

Soldering Paste

	Per Doz
Nokorode Soldering Paste	$3 00

HITCHING POSTS.



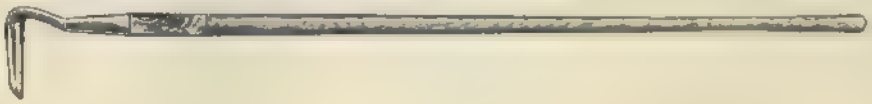
No. 13m. No. 9i. No. 4D. Iron.

No. 4 D, Galvanized Cap and Galvanized Cover	Mfrs. price, $3.60	Our net price, $3.25
" 4 D, Japanned " " " "	" " 3.10	" " " 2.75
" 9 i, Galvanized " " " "	" " 2.75	" " " 2.50
" 9 i, Japanned " " " "	" " 2.50	" " " 2.25
" 13 m, " " No Cover	" " 1.80	" " " 1.60
Iron Hitching Post, horse's head or ornamental top	" " 10.00	" " " 9.00

WOOD STABLE FORKS.

Best quality Hickory	Mfrs. price, per doz., $9.00	Our net price, each, $0.75
" Ash	" " 6.00	" " " .50

STALL HOOKS.



For cleaning stalls. Handled . . . . . Mfrs. price, per doz., $6.00 Our net price, each, $0.50

Star Safety Razors.

	Each
No. 9—Star Traveling Case, 2 Blades,	$ 9 00
No. 10—Star Dandy Case, 3 Blades,	10.00

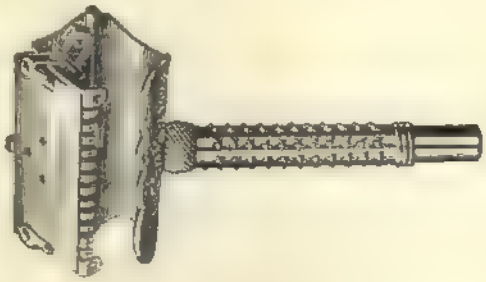
	Each
No. 12—Star Favorite Case, 7 Blades,	$16.00
No. 13—Star Favorite Traveling Case,	22.00
No. 14—Star Elite Case, Sterling Silver, 7 Blades,	30.00

	Each
No. 15—Star Outfit, 2 Blades,	$15.00
No. 17—Star Outfit, 7 Blades,	24 00

	Each
No. 18—Star Complete Outfit, 4 Blades,	$25.00
No. 19—Star Complete Outfit, 7 Blades,	30 00

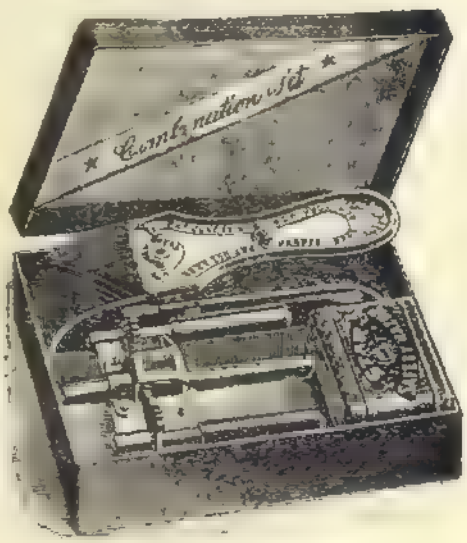
Star Safety Razors.

No. 2

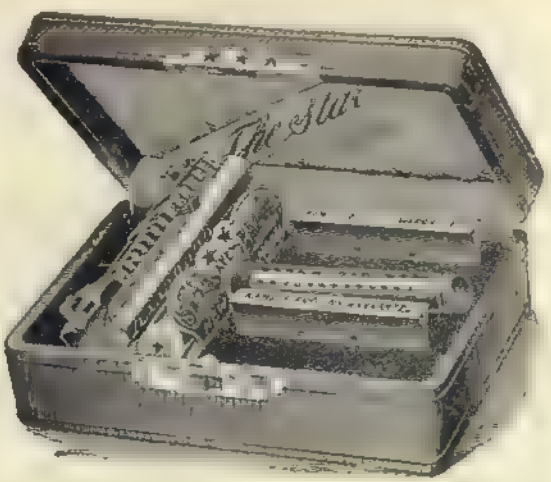


No. 1.

	Per Dozen
No. 1—Star Safety Razor, Put Up in Tin Box, with One Blade,	$27.00
No. 2—Star Safety Razor Blade, Put Up in Tin Box,	18.00



	Each
No. 4—Star Jewel Case, 1 Blade,	$4 00
No. 24—Star Combination Set,	$8.00



	Each
No. 5—Star Case, 2 Blades,	$5 50
No. 6—Star Case, 3 Blades,	8.00
No. 7—Star Case 4 Blades	$ 9 00
No. 8—Star Case, 5-Blades,	12.00

Chopping Bowls.

Hard Maple, Polished.

Inches,	15	17	19	21
Code	Cappelluta.	Cappletto.	Cappiolino.	Capponessa.
Weight Per Dozen, lbs.,	38	50	70	100
Per Dozen,	$5 00	7.00	9.00	11.00

15 and 17 In., One Dozen; 19 and 21 In., Half Dozen in Crate.

Chopping Trays.

Pointed Ends.

Hard Maple, Polished

Inches,	17	19	21
Code	Cappuccet.	Capp ucrino	Cappado.
Weight Per Dozen, lbs.,	37	49	54
Per Dozen,	$3.50	5.50	8.50

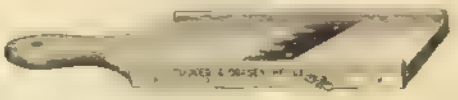
Oblong.

Hard Maple, Polished.

Inches,	17	19	21
Code	Capracinos.	Capragirum.	Capragn
Weight Per Dozen, lbs.,	42	50	60
Per Dozen,	$5 00	7.50	10.00

Half Dozen in a Crate.

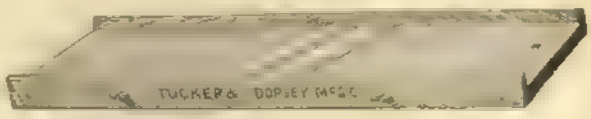
Vegetable Cutters.



Code Capretto. Per Dozen

No. 0—1 Knife, 3½x12 Inches, . . $1.50
Weight, 8 lbs. Per Dozen.

Slaw Cutters.



Code Capricer. Per Dozen

No. 1—1 Knife, 6¼x17 In., . . . $2.00
Weight, 27 lbs. Per Dozen.

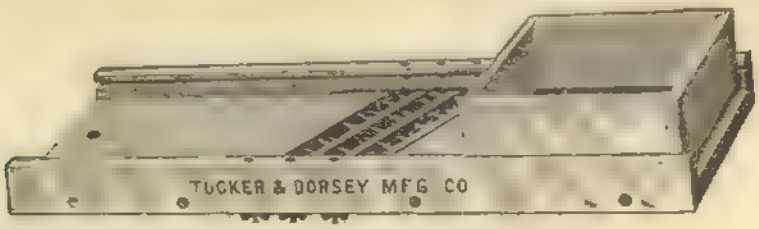
Code Capr c' r

No. 2—2 Knife, 6¼x18 In., . . . 3.00
Weight, 30 lbs. Per Dozen.

Code Capichio

No. 3—3 Knife, 7x21 In.. . . . . 7.00
Weight, 42 lbs. Per Dozen.

Kraut Cutters.



Code Caprid Per Dozen

No. 4—4 Knives, 8x26 In., with Box, ... $20.00
Weight, 112 lbs. Per Dozen.

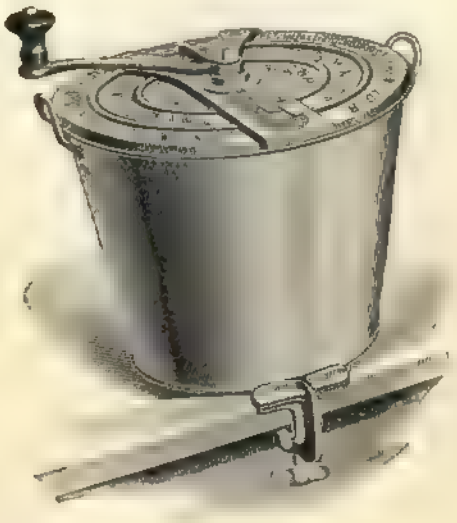
Code Caprifico.

No. 5—3 Knives, 9x30 In., with Box. 30.00
Weight, 140 lbs. Per Dozen.

Code Capriflens.

No. 10—4 Knives, 12x40 In., with Box, ... 60.00
Weight, 220 lbs. Per Dozen.

Bread Makers.

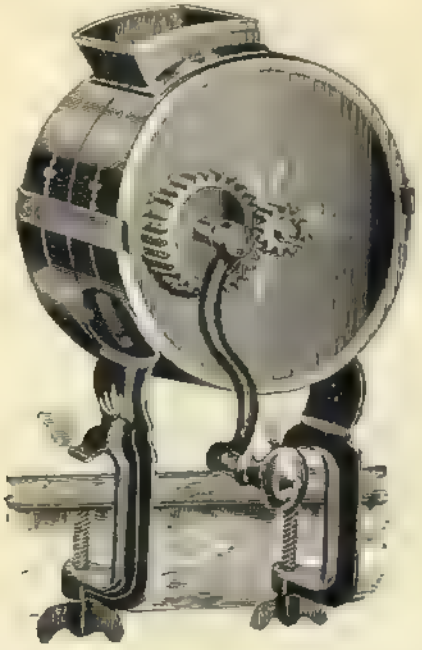


Code Capellum. Each

Universal Bread Maker, Extra Heavy Retinned Pail, Retinned Steel Kneader, with Crank Handle, to Clamp to Table, ... $2 50

The Universal Bread Maker is the latest in the market and will be found economical as well as a Time and Labor Saver. Will Knead 4 Loaves of Bread in 3 minutes. Pail has a capacity of about 12 Quarts.

Horse Radish Graters.



Code Capripedo. Each

Improved Horse Radish Grater, Height 15½ In. Overall 8 In. Wide, 3 In. Deep. . . $5.00

Only the best of iron and steel are used, the construction is simple and the wearing parts and bearings, durable, the process of grating is extremely rapid and the machine is easily cleaned. Horse Radish, Cocoanut, Bread, Potatoes and Chocolate can be grated with success. Horse Radish can be grated at the rate of one and one-half minutes to the stalk.

STEINS.

5655-22½ Tinted Stein, with embossed and colored figures; metal top. Height, 5 in. Per doz., $2.25

5662-20 Cream color Stein. Embossed figures and motto on blue background; pewter top. Height, 5½ in Per doz., $2.00

5651-25 Embossed cream color Stein, with figures in relief on dark green background; ¼ liter size; embossed metal top. Height, 6 in. Per doz., $3.50

5656-45 Cream color Stein with tinted border around top and bottom; embossed colored figures on dark background, ½ liter size; embossed metal top. Height, 8 in. Per doz., $4.50

5652-52 Cream color Stein, with motto and figures in relief on tinted background; ½ liter size; embossed metal top. Height, 8 in. Per doz., $5.00

5653-60 Cream color Stein, embossed around top and bottom; highly colored picture in center; embossed metal cover; ½ liter size. Height, 8 in. Per doz., $5.00

5664-90 Cream color Stein with motto; embossed tinted rim around top and bottom; highly embossed colored figures on tinted background; embossed metal cover; ¼ liter size. Height, 8 in Per doz., $9.00

5657-105 Fancy shape tinted Stein, with motto; embossed scroll design all around, on tinted background; highly embossed figures and country scenes in natural colors; embossed metal top; ½ liter size. Height, 10 in. Per doz., $10.50

5665-120 Tinted Stein, with embossed scroll work all around on tinted background; also figures in relief in natural colors; embossed metal top; ½ liter size. Height, 9½ in. Per doz., $12.00

5658-165 Tinted Stein. Embossed all around with highly colored figures on dark green background; embossed metal cover; 1 liter size. Height, 11 in. Per doz., $16.50

5665-180 Fancy shape tinted Stein. Highly embossed colored figures in relief on tinted background; embossed metal top; ½ liter size. Height, 8¾ in. Per doz., $18.00

5667-180 Embossed cream color Stein, with fancy gilt scrolls and flowers in natural colors all around; colored picture in center; embossed metal top; ½ liter size. Height, 9½ in Per doz., $18.00

5668-180 Cream color Stein with figures and scroll work all around in relief on tinted background; embossed metal top; 1 liter size. Height, 12 in. Per doz., $18.00

5659-240 Fancy shape tinted Stein with highly embossed figures and scroll work all around, in natural colors, on dark green background; embossed metal top; 1½ liter size. Height, 14 in. Per doz., $24.00

5670-300 Extra fine quality highly embossed Stein, with highly embossed figures and country scene in natural colors; embossed metal top; 1 liter size. Height, 12 in. Per doz., $33.00

NIGHT LAMPS.

1350-183¼ Night Lamp. Embossed red glass bowl and fount; complete with brass burner, wick and glass chimney. Height, 7 in. Each in box. 1 dozen in pkg. Per doz., $1.85

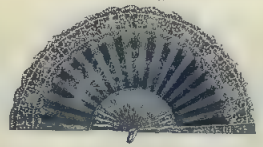
Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

LADIES' IMPORTED FRENCH FANS.

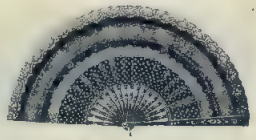
Elegantly Ornamented with Real Lace Borders and Applique Work on White Gauze, White Ivory Sticks, Hand Carved or Plain, Studded with Spangles, Etc.

Price Each

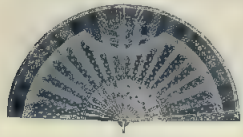
No. 2845. $6 00
White Silk Gauze Fan. Hand carved, white ivory sticks. Length 9 inches. Elaborately decorated with silver spangles. A very handsome design.



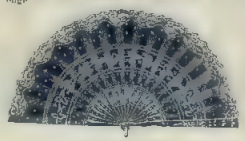
No. 2846. $6 25
White Silk Gauze Fan. White ivory sticks. Length 9 inches. Elegantly hand carved. Decorated with [illegible] and [illegible] and silver spangles. Lace edge.



No. 2847. $5 00
White Silk Gauze Fan. White ivory sticks. Length 8½ inches. Hand carved, richly decorated with silver spangles. 3 rows lace trimmings.

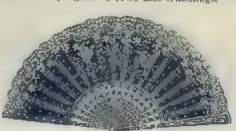


No. 2848. $4 50
White Gauze Fan. White ivory sticks. Length 8½ inches. Hand carved and silver studded, lace edge. Elegantly ornamented with silver spangles and white hand painted patterns.



No. 2849. $3 50
White Gauze Fan. White ivory hand carved sticks. Length 8½ inches. Lace edge and lace applique, silver spangles ornaments.

No. 2850. $2 75
White Gauze Fan. (Same description, except pearl ivory sticks, silver spangle studded, wide lace edge spangle ornaments.



No. 2851. $2 00
White Gauze Fan. Wood sticks, highly embossed. Lace applique and border, ornamented with silver spangles.

No. 2852. $1 00
White Gauze Fan. Embossed wood sticks, white lace edge, decorated with hand painted flora, design and silver spangles.

ROSARIES, REAL CORAL GUARD CHAINS, REAL AMBER NECK CHAINS.

Price Each.

Rosary
Silver Plated Ornaments.

No. 2853 Garnet . . $2 00
No. 2854 Amethyst 2 00
No. 2855. Amber 2 00
No. 2856. Pearl . . 2 00

No. 2857 Real Coral Guard Chain, Length 34 inches. . . . $0 75

No. 2858. Real Coral Guards Graduated, Length 34 inches $2 00

GENUINE AMBER BEAD NECK CHAINS.

Genuine Amber Bead Neckchain
No. 2859. Fitted with Screw Fastening, Length 14 inches $1 50

Genuine Amber Bead Neckchain
No. 2860. Graduated, Round Faceted Beads. Length 15 inches. . . $1 50

Genuine Amber Bead Neckchain
No. 2861. Graduated, Faceted Beads. Length 14 inches $0 62

No. 2862. Amber Bead Neckchain Length 13 inches $0 54

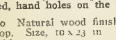
Rosary
No. 2863. $5 34
Cut Amethyst Beads
Sterling Silver Mountings
No. 2864. $5 34
Cut Garnet Beads
Sterling Silver Mountings.

SLEIGHS—Continued.

6516-80 Fancy bent knee wood Sleigh. Finely varnished and striped with top painted in handsome colors, straight fenders; 3 bent knees with iron braces and half oval runners. 1 6 dozen in case. Size, 15 x 36 in. Per doz., $8.00

HARDWOOD CLIPPERS.

We do not break cases.



The best cheap hardwood clipper on the market. Finished in natural wood, nicely varnished, with top painted and decorated, hand holes on the side.

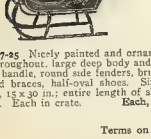
6521-90 Natural wood finish. Fancy board top. Size, 10 x 23 in. Flat runners. ½ dozen in case. Per doz., $2.00

6522-35 Natural wood finish. Nicely varnished fancy top board painted and decorated; flat runners. Size, 10 x 30 in. ½ dozen in case. Per doz., $3.50

6523-40 Natural wood finish. Nicely varnished; fancy top board decorated; full round spring shoes. Size, 11 x 37 in. ½ dozen in case. Per doz., $4.00

CHILD'S CUTTERS.

6536-13¼ Neatly varnished and ornamented; seat and push handle; flat shoes Size of body, 13½x28½ in.; entire length sleigh, 48 in. Each in crate. Each, $1.35



6537-25 Nicely painted and ornamented throughout, large deep body and seat, push handle, round side fenders, brightly plated braces, half-oval shoes. Size of body, 15 x 30 in.; entire length of sleigh, 48 in. Each in crate. Each, $2.50

6538-45 Beautifully painted and ornamented, brightly plated braces and rails; half-oval shoes, push handle, seat upholstered in velour. Size of body, 16x 38 in., entire length of sleigh, 50 in. Each in crate. Each, $4.50

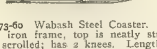
WABASH SLEDS AND COASTERS.

Wabash Sleds and Coasters are so well and favorably known by the trade it would seem useless to enumerate in detail the special features and qualifications that have made them so quickly popular throughout the country.

They have materially added to and strengthened the line and recommend for your careful consideration the new numbers they have added this season. The features in these that insure their success are: **Light Weight, Neat Design, True Proportion and Handsome Finish.**

Wabash Sleds are shipped **knocked down** to save 50 to 100 per cent. in freight, 250 per cent. in storage room and insure safety from damage in transit.

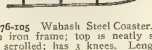
WABASH STEEL COASTERS.



2373-60 Wabash Steel Coaster. Wabash iron frame, top is neatly striped and scrolled; has 2 knees. Length, 32 in.; width, 12 in.; height, 4½ in. ½ dozen in a crate. Per doz., $6.00

2374-80 Wabash Steel Coaster. Wabash iron frame; top is neatly striped and scrolled; has 2 knees. Length, 34 in.; width, 12 in.; height, 4½ in. ½ dozen in crate. Per doz., $8.00

2375-90 Wabash Steel Coaster. Wabash iron frame; top is neatly striped and scrolled; has 2 knees. Length, 38 in. width, 12 in., height, 4½ in. ½ dozen in crate. Per doz., $9.00

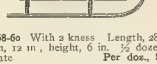


2376-105 Wabash Steel Coaster. Wabash iron frame; top is neatly striped and scrolled; has 3 knees. Length, 42 in.; width, 12 in; height, 4½ in. ½ dozen in crate. Per doz., $10.50

2377-140 Wabash Steel Coaster. Wabash iron frame; top is neatly striped and scrolled; has 3 knees. Length, 45 in.; width, 12 in.; height, 4½ in ½ dozen in crate. Per doz., $14.00

WABASH STEEL SLEDS.

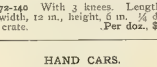
Wabash Steel Sleds are very light, smooth and durable steel sleds, and we wish to call your particular attention to the new "T" steel runner which is the lightest material ever used for steel sleds. It is very strong and of neat appearance. Each sled has a very handsome light colored top, assorted colors and beautiful hand decorations and handsomely scrolled.



2368-60 With 2 knees. Length, 28 in.; width, 12 in, height, 6 in. ½ dozen in a crate. Per doz., $6.00

2369-80 With 2 knees. Length, 30 in.; width, 12 in; height, 6 in. ½ dozen in a crate. Per doz., $8.00

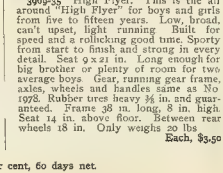
2370-90 With 2 knees. Length, 33 in.; width, 12 in; height, 6 in ½ dozen in a crate. Per doz., $9.00



2371-105 With 3 knees. Length, 36 in.; width, 12 in, height, 6 in. ½ dozen in crate Per doz., $10.50

2372-140 With 3 knees. Length, 38 in.; width, 12 in., height, 6 in. ½ dozen in a crate. Per doz., $14.00

HAND CARS.



3969-35 High Flyer. This is the all around "High Flyer" for boys and girls from five to fifteen years. Low, broad, can't upset, light running Built for speed and a rollicking good time. Sporty from start to finish and strong in every detail. Seat 9 x 21 in. Long enough for big brother or plenty of room for two average boys Gear, running gear frame, axles, wheels and handles same as No 1978. Rubber tires heavy ⅜ in. and guaranteed. Frame 38 in. long, 8 in. high. Seat 14 in. above floor. Between rear wheels 18 in. Only weighs 20 lbs Each, $3.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

ROCKING HORSES.

We do not Break Assortments.

Assortment No. 6174-90.

Contents.

3 pieces No. 20 Rocking Horse. Body 5 x 5 in., hollow block, turned legs, hardwood bent rockers, enameled cloth saddle, painted mane and tail. Retail price, $1.25

3 piece No. 22 Rocking Horse. Body 5 x 5 in., turned legs, hardwood rockers, good saddle, hair tail and stirrups. Weight each about 10 lbs Retail price, $1 50

¼ dozen in Case.

Price per dozen, $9.00.

WE DO NOT BREAK CASES.

ROCKING HORSE.

6175-150 Rocking Horse. 6 x 6 in. block, turned legs, bent hardwood rocker, nicely painted and striped. Enamel cloth saddle, trimmed with gimp, and enamel cloth saddle flaps, trimmed with colored wool fringe. Hair mane and tail. Martingale and stirrups, but with fancy breastband ¼ dozen in case

Per doz., $15.00

SWINGING HORSES.

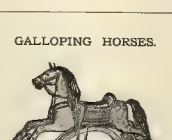
6176-18½ Swinging Horse. 5½ x 5½ in. block, 26 in. high from floor to head. Nicely painted and striped stand. English saddle in enamel cloth, enamel cloth saddle flaps trimmed with fancy colored wool fringe, has hair mane and tail, stirrups, martingale with rings, heavy breast band.

Each, $1.65

6178-30 Swinging Horse. 6 x 6 in block, 30 in. high from floor to head Nicely painted and striped stand. English saddle in enamel cloth, enamel cloth saddle flaps trimmed with fancy colored wool fringe, has hair mane and tail, stirrups, martingale with rings, heavy breastband. Each in case.

Each $3.00

GALLOPING HORSES.



6177-30 Galloping Horse. 5½ x 5½ in. block; 28 in. high from floor to head. Nicely painted and ornamented stand English saddle of enamel cloth, enamel cloth saddle flaps trimmed with fancy colored wool fringe. Hair mane and tail, stirrups and martingale with rings. Heavy breastband. Each in case.

Each, $3.00

6179-37¾ 6 x 6 in. block, 30 in. from floor to head. With carved neck and shaped legs Trimmed like No. 6177 30. Each in case

Each, $3.75

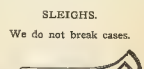
GALLOPING HORSE.

6180-50 Enamel finish, 6 x 6 in block, 30 in. high from floor to head. Extra heavy neck, head and legs beautifully carved. Horseshoes, English saddle of fine leather, silk plush back. Fine leather saddle flaps, with leather binding. Silk plush blankets, trimmed with heavy brass ornaments, and gold braid, gold fringe edge. Heavy glazed leather REMOVABLE bridle trimmings, breastband and stirrups Glass eyes and very full mane and tail. Each in case.

Each, $5.00

SLEIGHS.

We do not break cases.

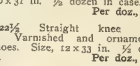


6510-20 Straight knee wood Sleigh. Varnished and ornamented. Flat shoes. Size, 10 x 31 in. ⅛ dozen in case.

Per doz., $2.00

6511-22½ Straight knee wood Sleigh. Varnished and ornamented. Flat shoes. Size, 12 x 33 in. ½ dozen in case.

Per doz., $2.25



6514-38½ Bent knee wood Sleigh painted in color. Nicely painted top; 3 knees; flat shoes. Size, 12 x 36 in. 1-6 dozen in case.

Per doz., $3.85

6513-45 Fancy bent wood Sleigh in natural color. Neatly painted top; has two bent knees, flat shoes and dragons head. 1-6 dozen in case. Size, 12 x 33 in.

Per doz., $4.50

6515-75 Fancy bent knee wood Sleigh. Neatly painted top; has 3 knees; half-oval shoes and dragon heads. 1-6 dozen in case. Size, 12 x 36 in.

Per doz., $7.50

Terms on above, 10 days less 2 per cent, 30 days less 1 per cent, 60 days net.

24-INCH UNIVERSAL TURRET LATHE.

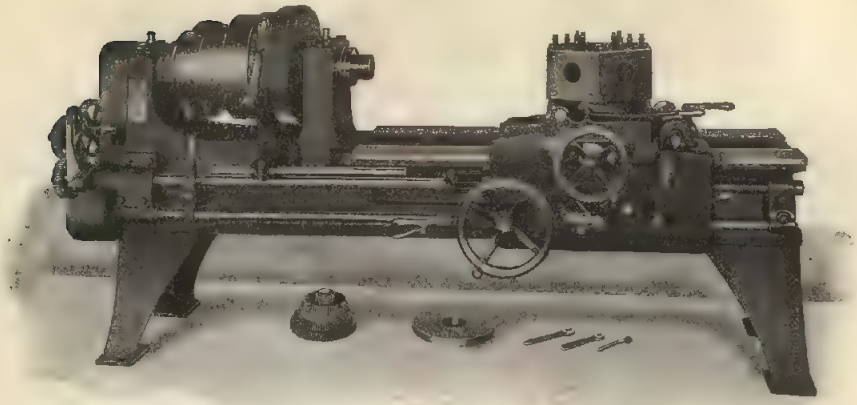


FIG. 2442

The 24-inch Universal Turret Lathe, shown above, is especially adapted for the manufacture of iron and brass valves from three to six inches, and for a great variety of machine parts such as gears, pulleys, bearings, etc., as well as for general "chucking" work.

Complete description upon application.

HOLLOW HEXAGON TURRET LATHES.

1¾ x 15 INCHES, 2¼ BY 24 INCHES AND 3⅝ x 36 INCHES.

No. 2. 2¼ x 24 INCHES.

FIG. 2441

The Hollow Hexagon Turret Lathes are especially adapted for producing duplicate machine parts with a high degree of accuracy and at a minimum cost, and yet the tools are so universal, that even where there are but few pieces of a kind, a marked saving of time over the old methods is apparent. These machines are capable of using the high-speed tool steels to their limit of efficiency.

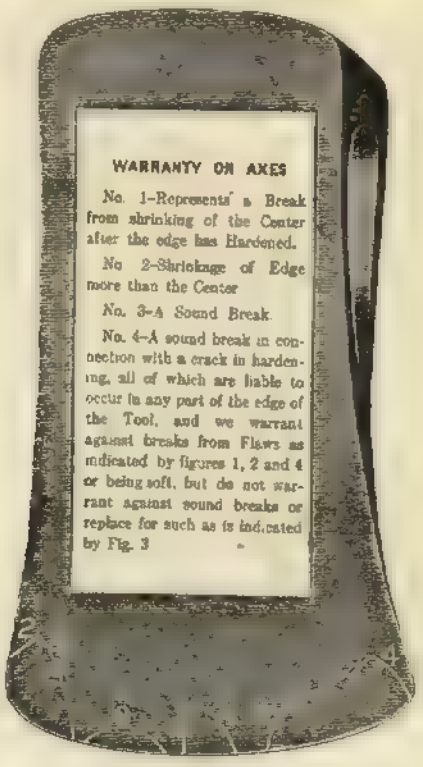
CAPACITY. These machines are made in three sizes. No. 1 takes stock through automatic chuck up to 1¾ inches in diameter, and turns same up to 15 inches long; No. 2, 2¼ inches diameter, 24 inches long, and No. 3, 3⅝ inches diameter by 36 inches long. The swing over beds are respectively 14, 16 and 24 inches.

The automatic chuck handles bar stock of any shape. The tool equipment regularly furnished is adapted for a great variety of work, including thread cutting.

Write for the "Hollow Hexagon Turret Lathe Book," which is devoted exclusively to the illustration and description of these machines.

Warranty on Axes

We Warrant the **Olympic** Brand only, on Terms Stated below. We do not warrant any other brands


WARRANTY ON AXES
No. 1–Represents a Break from shrinking of the Center after the edge has Hardened.
No 2–Shrinkage of Edge more than the Center
No. 3–A Sound Break
No. 4–A sound break in connection with a crack in hardening, all of which are liable to occur in any part of the edge of the Tool, and we warrant against breaks from Flaws as indicated by figures 1, 2 and 4 or being soft, but do not warrant against sound breaks or replace for such as is indicated by Fig. 3

No Claims for defective Axes will be entertained except in accordance with this Warranty.

Defective Axes must be returned to us with Freight or Express Charges **Prepaid.**

N. B.—The Eyes are **Punched** from **One Solid** piece of **Steel,** and will therefore not stretch or open up. In view of which our warranty does not Cover opened or Broken Eyes, which are clearly the result of Axes being used as **Mauls** instead of for Chopping.

The Steel in all Axes in order to carry a good Edge, must be of high Temper, and for this reason a good axe is more liable to break than a poor one. Soft steel will first bend and then break, so it is impossible for an axe that is too soft to hold a good Cutting Edge. Breaks from Flaws are readily known by being Angular in form, not by the Color, while Sound breaks (which are no fault of the Manufacturer) are always Circular in form.

Whiton Hardware Co.

Classification of Weights of Axes

Add per Dozen to Base Prices on all Single and Double Bit Axes

STRAIGHT WEIGHTS

Weights	Per Doz.
3 Pounds.	Base
3¼ "	"
3½ "	"
3¾ "	Add to Base $ 0.25
4 "	" " .25
4¼ "	" " .50
4½ "	" " .50
4¾ "	" " .75
5 "	" " .75
5¼ "	" " 1.00
5½ "	" " 1.00
5¾ "	" " 1.25
6 "	" " 1.25

ASSORTED WEIGHTS

Weights	Per Doz
3 to 3½ Pounds.	Base
3 to 4 "	"
3¼ to 3¾ "	"
3¼ to 4¼ "	Add to Base $ 0 25
3½ to 4 "	" " .25
3½ to 4½ "	" " 25
3¾ to 4¼ "	" " .25
4 to 4½ "	" " .50
4 to 5 "	" " .50
4½ to 5 "	" " .75
4½ to 5½ "	" " 75
5 to 5½ "	" " 1.00
5 to 6 "	" " 1.00

TOOLS

MISCELLANEOUS
and BUILDERS

HARDWARE

MARINE HARDWARE
and LAUNCH SUPPLIES

CUTLERY

FISHING TACKLE
GUNS *and* AMMUNITION

WHITON HARDWARE CO.
108-110 FIRST AVENUE SOUTH
SEATTLE

WATERBURY, COMPANION.
Rich Roman Gold Plated

No. 784. 1 Day, Time Alarm .. $6 00
No. 785. 1 Day, ½ hour Strike, Repeater.. 6 00
2 in. Ivory Dial, Beveled Glass.
Height 5¼ in

No. 792. PAPER WEIGHT. Each, $3.50
1 Day, Time. Dial 1½ in.
Porcelain Dial, Gilt Center, Arabic or Roman.
Antique Brass, Silver or Gilt

WATERBURY, SAGE.
Rich Gold Plated

No. 793 8 Day Time ..... $ 6 50
No. 794 8 Day ½ Hour Strike, Repeater 10 00
2 in. Porcelain Dial.
Beveled Glass at Top, Front and Sides.
Height 5⅝ in.
No. 795 Leather Case for Above.... .... 83 00

WATERBURY, CONDUCTOR.
Rich Gold Plated

No. 786 1 Day, Time, (Solid Buck) . . $5 00
No. 787 1 Day, Time, Alarm 6 00
No. 788 1 Day ½-hour Strike, Repeater 8 00
2 in. Ivory Dial.
Beveled Glass at Front and Sides.
Height 4½ in
Put up in Leatherette Case
Red Leather Case for Above $1 75

No. 791. LA SALLITA. List, $1.16
1 Day Time
Put up in Tin Box

ANSONIA, BON-TON.
8 Day Time
Dial 1½ in Height 4½ in
Porcelain Dial Arabic or Roman
Beveled Glass
Finished in Antique Brass or Silver
No. 796 List. .... each, $ 8 05
No. 797 Finished in Rich Gold each 10 80
Carrying Case for Bon Ton. 1 25

COLONIAL.

No. 789 Rich Gold $3 20

THE JUNIOR TATTOO ALARM
FULL SIZE.

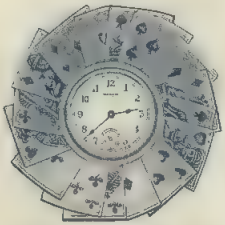
This miniature Alarm Clock has a 2¼ in. case with knurled edge and the bell on the back. It is fitted with an intermittent alarm movement with switch for shutting off the alarm. 2 in. Arabic dial
No. 790 List. .
$2 88

BREEZE
1 Day, Time
Dial 2 in. Height 6 in.
Porcelain Dial Gilt Center.
Finished in Rich Gold
No. 798. List. .. .. each, $3.15

RICH GOLD NOVELTY CLOCKS.

No. 799. LIEGE. List, $2.10
Height 5 inches. Width, 5 inches. One Day Time

No. 800. LISBON. List, $2 65
Height, 6 inches. Width, 6½ inches. Dial, 2 inches
Ormolu Gold Plated, One Day Time.



No. 801. FLUSH. List, $2.50
Height, 5 inches. Width, 5 inches. Dial, 2 inches
24k Ormolu Gold Plated, Plain White Dial
One Day Time

No. 802. FERNEY. List $4.50
Height 5½ inches. Width, 5¾ inches
Ivorized Porcelain Dial. One-Day Time
No. 803. List, $5.40
Eight Day Time

No. 804. ALVORD. List, $3.10
Height, 6 inches. Width, 4¾ inches
Ormolu Gold Plated. One-Day Time

No. 805. CHISWICK List, $4.80
Height, 5¾ inches. Width 5 inches
Ivorized Porcelain Dial with Gilt Center
One Day Time

No. 806. List, $3.50
Rich Gold 7 in Les High

No. 807. BENCLARE. List, $2 10
Height, 3⅜ inches. Width, 4⅝ inches
Dial, 2 inches
24k Ormolu Gold Plated Plain White Dial
One-Day Time

No. 808. LA GRAND List, $4.25
24k Ormolu Gold Finish
Height 5⅝ inches. Width 3¾ inches.
Dial, 2 inches. One Day Time

Laib Co.
561
Louisville Ky.

WATER CRANE.

WATER CRANE.

FIG. 1498.

SHOWING CRANE REMOVED.

FIG. 1499.

WATER CRANE, HYDRANT ATTACHMENT.

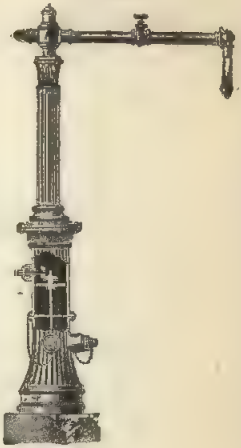


FIG. 1500.

Price, Water Crane	each	60.00
Price, Water Crane, with Hydrant Attachment	each	90.00

The weight of the Crane Attachment necessitates a heavier base hydrant hence it cannot be applied to the regular pattern.

The Water Crane is lighter in weight than that for hydrant attachment, but has the regular valve, waste and frost case.

Laib Co.
560
Louisville Ky

FIRE HYDRANTS.

SECTIONAL.

FIG. 1496.

FIG. 1497.

Size, Valve Opening, In.	PRICE. Single Valve Hydrants, With Sliding Frost Case.	Length From Pavement to Bottom of Pipe, Feet.					
		2½ or 3	3½ or 4	4½ or 5	5½ or 6	7	8
4	One Hose Discharge	30.00	31.00	32.00	33.00	35.00	37.00
4	Two Hose Discharge	32.00	33.00	34.00	35.00	37.00	39.00
4	Steamer Discharge	36.00	37.00	38.00	39.00	41.00	43.00
4½	Two Hose Discharge	36.00	37.00	38.00	39.00	41.00	43.00
4½	Steamer and One Hose Discharge	38.00	39.00	40.00	41.00	43.00	45.00
4½	Steamer and Two Hose Discharge	40.00	41.00	42.00	43.00	45.00	47.00
5	Steamer Discharge	42.00	43.00	44.00	45.00	47.00	49.00
5	Two Hose Discharge	42.00	43.00	44.00	45.00	47.00	49.00
5	Three Hose Discharge	44.00	45.00	46.00	47.00	49.00	51.00
5	Steamer and One Hose Discharge	44.00	45.00	46.00	47.00	49.00	51.00
5	Steamer and Two Hose Discharge	46.00	47.00	48.00	49.00	51.00	53.00
6	Steamer Discharge	46.00	48.00	50.00	52.00	55.00	58.00
6	Two Hose Discharge	46.00	48.00	50.00	52.00	55.00	58.00
6	Three Hose Discharge	48.00	50.00	52.00	54.00	57.00	60.00
6	Four Hose Discharge	50.00	52.00	54.00	56.00	59.00	62.00
6	Steamer and Two Hose Discharge	50.00	52.00	54.00	56.00	59.00	62.00
6	Double Steamer Discharge	50.00	52.00	54.00	56.00	59.00	62.00

Add to Above Lists for Double Valve Hydrants; 4 and 4½ inch, 12.00: 5 and 6 inch, 15.00. Independent Nozzle Cut Off; Hose Discharge, 4.00: Steamer Discharge, 6.00. Secondary Gates; 4 inch for 4 or 6 inch Pipe, 12.50: 5 inch for 6 inch Pipe, 15.50. 6 inch for 6 inch Pipe, 18.50.

RAIL BENDERS.

HYDRAULIC "T" RAIL BENDER.

In a recent test in service two men bent 40 30-ft. 90-lb. steel rails in one day, where previously 20 had been the best work of six men with the best of screw benders, and one rail was bent perfectly flat on 45 feet radius in 1½ minutes, on 16-inch centers of application.

No. 1, weight, 200 for 70-lb. 40 Carbon Rail; price, $160. No. 2, weight, 275 for 90-lb. 40 Carbon Rail; price, $200. No. 3, weight, 425 for 100-lb. 70 Carbon Rail; price, $250.

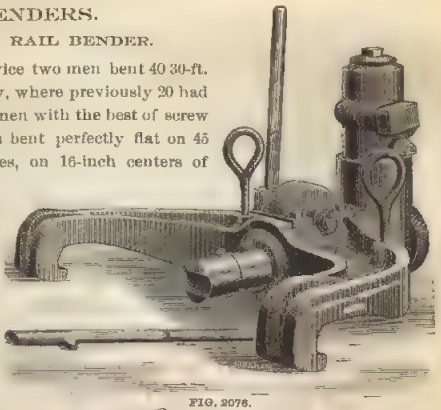


FIG. 2076.

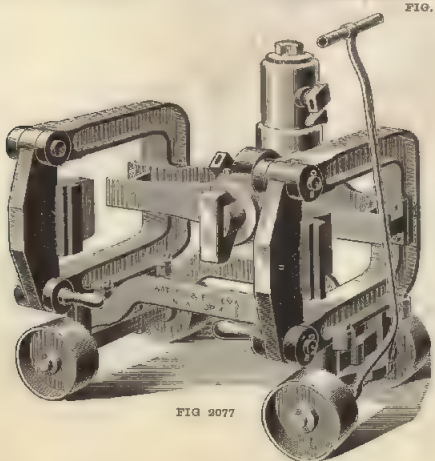


FIG 2077

MOUNTED 10-INCH GIRDER RAIL BENDER.

Hinged Yoke.

The ram can be thrown out against the work or withdrawn by rack and pinion, and there is easy accessibility of working parts. The truck is made of iron; the rest of the tool, except the head, is steel. One set of three bending blocks only are furnished with the tool.

No. 3, 75-ton power; weight, 890 pounds; price, $330.
No. 4, 120-ton power; weight, 1,075 pounds for heavy 10-inch guard rail; price, $425.

TRACK DRILL.

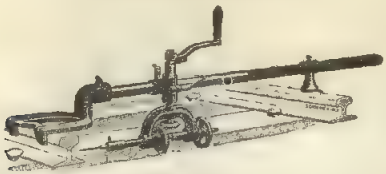


FIG. 2078.

Large quantities have been used for track work, for drilling holes through rails for electric bonding wires, and for binding-rods, etc. Engineers and others will at a glance see its utility and convenience. Two sets of gears go with each Drill, making it either speeded or geared back. It weighs 68 lbs. and will carry Drills up to 1 inch. Price, each $25 00

THE "IXL" TRACK DRILL.

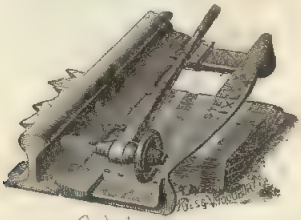


FIG. 2070.

To fasten under the rail. Price, each, $8.00

1. It is strong, light and easily adjusted
2. The clamp, being of steel, will not break.
3. It drills holes for a joint without drawing the spikes or moving the clamp.
4. Adjustment from one hole to another is done more easily than with any similar tool.
5. The ratchet may be used wherever needed, it being a ratchet drill with hand feed wheel.

Complete, as shown in cut, with one drill point. Extra drill points, 50 cents each.

SCREW RAIL BENDER, OR "JIM CROW."

Best wrought steel and iron, with machine-cut, square thread screw.

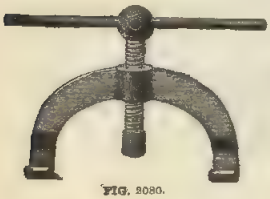


FIG. 2080.

Size Number.	0	1	2	3	3½	4
For steel rails, weight per yard.....Lbs.	20	25	50	68	78	95
Price, with lever..... Each	$18.00	$22.00	$30.00	$36.00	$45.00	$54.00
Weight, with lever.....Lbs.	45	67	98	145	160	200
Span to center of claws...In	16	19	22	27	28	28
Diameter of Screw ....."	1¼	2	2¼	2½	2⅝	2¾

N. B.—Lever is always sent unless requested to omit same.

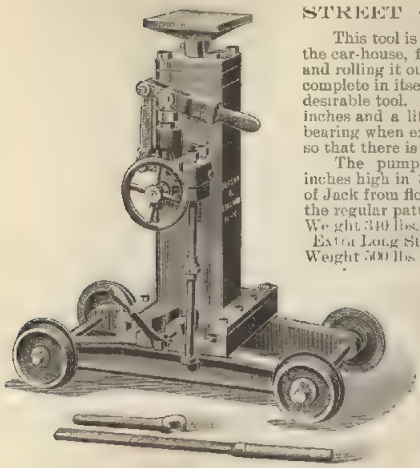


FIG. 2514.

STREET CAR MOTOR LIFT.

This tool is designed for use in the pit of the car-house, for dropping the motor down and rolling it out from underneath the car, is complete in itself, and has been found a very desirable tool. The ram has a diameter of 2¾ inches and a lift of 22 inches, with a good bearing when extended. The Jack is mounted so that there is a side adjustment of 2 inches.

The pump will raise 3,000 pounds 12 inches high in 80 seconds. The total height of Jack from floor to ram-cap is 34 inches in the regular pattern.

Weight 340 lbs. $110.00

Extra Long Stroke Motor Lift. (33 inches.)

Weight 500 lbs. $160.00

VREELAND PATENT TRANSFER PIT JACK.

N. & W. OR P. & R. STANDARD.

Capacity. . . . . 15 tons
Lift (P. & R. standard). . . . . 60 inches
" (N. & W. "). . . . . 54 inches
Height of Ram from Rail to center of saddle . . . . . 2 ft. 11 inches
Length below rail . . . . . 3 ft. 3 inches
Gauge. . . . . 18 inches
Wheels. . . . . 13½ inches

Also built of 30 tons capacity on special order.

VREELAND STANDARD.

Power. . . . . 15 tons
Lift. . . . . 54 inches
Ram. . . . . 3 inches
Height from rail to center of saddle. . . . . 25 inches
Length below rail . . . . . 44 inches
Gauge. . . . . 11 inches
Wheels. . . . . 6 inches

New York Central Standard is same as above, except 5-ft. lift and pit 6 in. deeper.

Price, either. $350.00

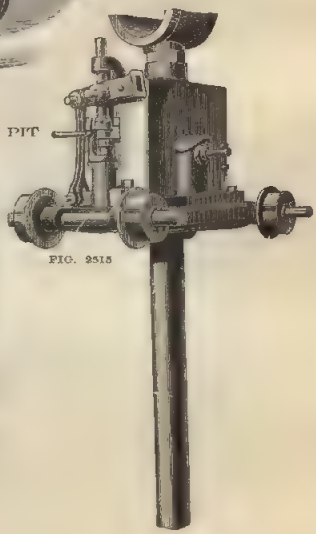


FIG. 2515

WESTERN ELEVATING GRADER, DITCHER AND WAGON LOADER.

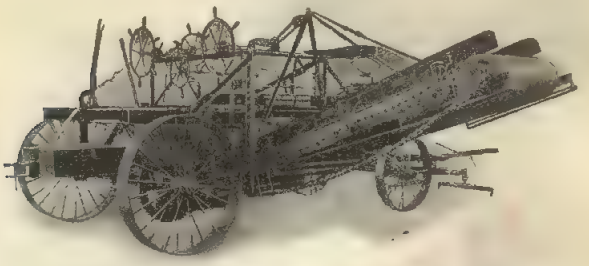


FIG 2234

The machine is especially recommended for excavating canals, ditches and reservoirs, loading wagons, building levees and embankments, throwing up roadways (turnpiking), etc. Numbers of these graders are in use on railroad work, in building canals and in the arid regions, as well as in the rice districts, in irrigation work.

Where it is desired to haul the earth long distances, it can be loaded into wagons as fast as they can be got under the elevator (at the rate of 500 to 800 wagons per day). And if the late improved Aurora Dump Wagon is used, there need be only momentary stoppage of the wagons for loading and none for dumping.

We sell the machine on a trial order contract, in which we guarantee, among other things, if the soil is in fit condition for plowing with an ordinary road plow, that the machine will move 1,000 cubic yards per day. It requires one operator, besides the drivers of the teams. Twelve to sixteen horses are used on the machines, according to the condition of the soil.

By figuring the wages of men and the expense for teams in a given locality, it will be found that the cost of moving the thousand yards per day is almost nominal, and it is an undeniable fact, and one which will be readily conceded by anyone experienced in earth handling, that on work to which it is adapted there is nothing else made that will do the work at so low a cost.

Made in three sizes, carrying elevators ranging in lengths from 15 to 30 feet.

Prices upon application.

FIG. 2235

AURORA DUMP WAGON.

The late improved Aurora Dump Wagon is lower than any other on the market, stronger and more durable, and sure to give satisfaction.

Prices upon application.

Laib Co.
780
Louisville Ky

WILEY WOOD OIL CABINETS.

SINGLE. DOUBLE. TRIPLE.

FIG. 2129. FIG. 2130. FIG. 2131.

Dealer's Sizes. **Factory Sizes.**

40 INCHES HIGH AT THE BACK.					30 INCHES HIGH, FRONT AND BACK.				
Capacity, Gallons.	Price, Each.	Number of Compartments.	Number of Barrels Cabinet Is For.	Width and Length, Inches.	Capacity, Gallons.	Price, Each.	Number of Compartments.	Number of Barrels Cabinet Is For.	Width and Length, Inches.
25	20.00	1	*	20 x 22	25	20.00	1	**	22 x 22
60	25.00	1	1	22 x 31	60	25.00	1	1	26 x 28
110	35.00	1	2	26 x 41	110	35.00	1	2	26 x 47
120	45.00	2	2	26 x 49	120	45.00	2	2	26 x 52
160	40.00	1	3	28 x 53	160	40.00	1	3	26 x 66
170	50.00	2	3	28 x 57	170	50.00	2	3	28 x 64
180	60.00	3	3	28 x 71	180	60.00	3	3	26 x 76
210	45.00	1	4	34 x 56	210	45.00	1	4	30 x 73
220	55.00	2	4	34 x 60	220	55.00	2	4	30 x 77
260	50.00	1	5	34 x 69	260	50.00	1	5	30 x 89
270	60.00	2	5	34 x 71	270	60.00	2	5	30 x 94
300	90.00	5	5	36 x 82	300	90.00	5	5	30 x 106

* 41 inches high. ** 32 inches high.

NOTE.—Each Dealer's Cabinet is supplied with a Tin Pump for pumping the Oil from the barrel into the Cabinet, or four feet of Rubber Tubing for syphoning the Oil from the barrel into the Cabinet, as preferred, and full set of Measures.

NOTE.—Each Factory Cabinet is supplied with a Tin Pump for pumping the Oil from the barrel into the Cabinet, or four feet of Rubber Tubing for syphoning the Oil from the barrel into the Cabinet, as preferred.

Each compartment, as will be seen from the above list, holds ten gallons more than the number of full barrels it is made for.

To ascertain the cost of a Single Cabinet of any desired capacity add 5.00 for each 50 gallons as follows: A Cabinet holding 110 gallons costs 35.00; one holding 160 gallons, 40.00, and so on up. If a Double Cabinet is wanted, add 10.00 to the price of a Single one of the capacity desired. Each additional compartment costs 10.00, as appears in the List above.

"WILLEY" NO. 2, 5-FOOT ELECTRICALLY DRIVEN RADIAL DRILL.

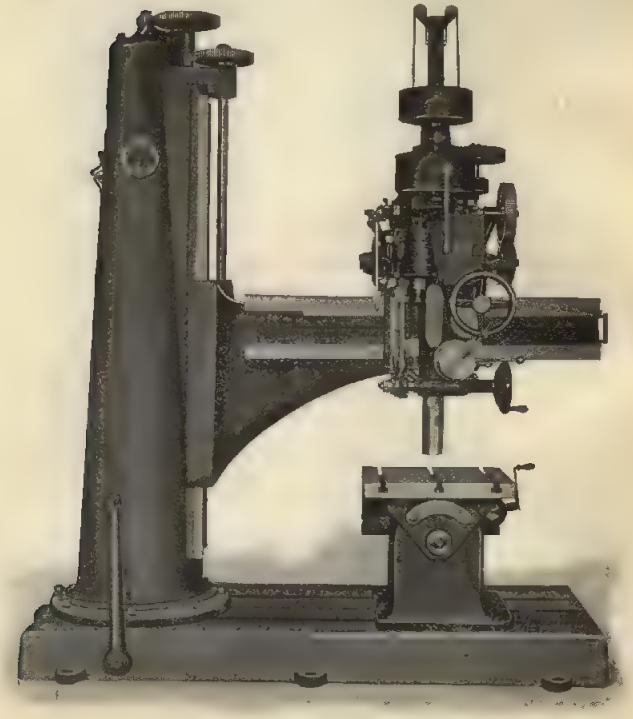


FIG. 2451.

Description on Page 832.

"WILLEY" No. 2, 5-FOOT ELECTRICALLY-DRIVEN RADIAL DRILL.

This is our latest improved Radial Drill having driving motor built into the head and hoist motor mounted on top of column. Motors are for single voltage circuits and all speed changes are made with the starting handle and one friction clutch back gear. Has eight positive feeds, friction reverse for tapping, depth gauge, automatic stop and all operating handles located on head, in easy reach of operator. Column swings on ball and roller bearings, and arm and column are properly proportioned to give maximum stiffness and rigidity. Every adjustment and movement can be easily and quickly made, and these features of handling in connection with the powerful spindle drive enables this drill to show many points of superiority over anything made. Wound for any voltage up to 250 direct current only.

DIMENSIONS.

Drills in center of circle of diameter	10 ft.
Vertical traverse of spindle	16 in.
Vertical traverse of arm on column	44 in.
Least diameter of spindle	2⅞ in.
Hole in spindle fits Morse taper	No. 5.
Minimum distance column to center of spindle	14½ in.
Maximum distance column to center of spindle	60 in.
Traverse of head on arm	45½ in.
Maximum distance spindle to base plate	62½ in.
Minimum distance spindle to base plate	0 in.
Maximum distance spindle to floor	69½ in
Total height of drill	112 in.
Highest point on head at top of column	141 in.
Size of bed	92 x 41 in.
Size of tilting table	24 x 24 in.
Height of tilting table	24 in
Diameter of circle described by arm, head at end	172 in.
Weight of complete tool	8,000 lbs
Weight of complete tool, crated for domestic shipment	9,000 lbs.
Weight of complete tool, boxed for foreign shipment	9,500 lbs.
Cubical contents of boxes for foreign shipment	240 cubic ft.
Maximum horse-power of drill motor	3
Maximum horse-power of raising motor	2

"WILLEY" DIRECT DRIVEN SENSITIVE DRILL.

This machine has a capacity for drilling holes from 0 to $\frac{3}{8}$ inch, and is intended for light work requiring accuracy and very rapid handling.

The motor is mounted upon the frame directly over the spindle, and has a hollow shaft through which the drill spindle slides and is driven by a key.

FIG. 2482

Three speeds are provided, ranging from 700 to 1300 revolutions per minute, which are obtained by simply moving the starting handle on the side of the motor to a position giving the speed desired.

An index gives the exact speed of the spindle for each of the three positions of the starting lever.

The motor, being of the slow speed type, is extremely durable and requires no starting resistance.

This tool has but three bearings, and, as there is no side pull upon any of them as in machines driven by belts or friction wheels, the loss of power through friction is very small and wear of bearings is reduced to a minimum.

The spindle has a ball thrust bearing, and is counter-balanced by a spring, and the table by a weight inside the column. An index line is made on column so table can be centered at any height on column.

A chuck of standard make fitted to the spindle, is furnished with the tool, also V block, cup and point centers, making it complete and ready for work as soon as wires are attached.

DIMENSIONS:

Drills up to $\frac{3}{8}$-in. hole center of	12 in.
Greatest distance from spindle to table	38 in.
Vertical traverse of spindle	3 in.
Diameter of spindle in sleeve	$1\frac{3}{16}$ in.
" " " above "	$\frac{3}{4}$ in.
Diameter of table	$11\frac{5}{8}$ in.
Floor space	14x18 in.
Total height of drill	73 in.
Weight of machine	250 lbs.
Weight crated for domestic shipment	325 lbs.
Weight boxed for foreign shipment	400 lbs.
Outside dimensions of box for foreign shipment	15 x 24 x 80 in.
Maximum horse-power of motor	$\frac{1}{8}$

No. 2 Morse taper end of spindle.

Wound for either 110 or 220 volts direct current.

COMBINATION OF

STOW FLEXIBLE SHAFT AND MULTI-SPEED ELECTRIC MOTOR.

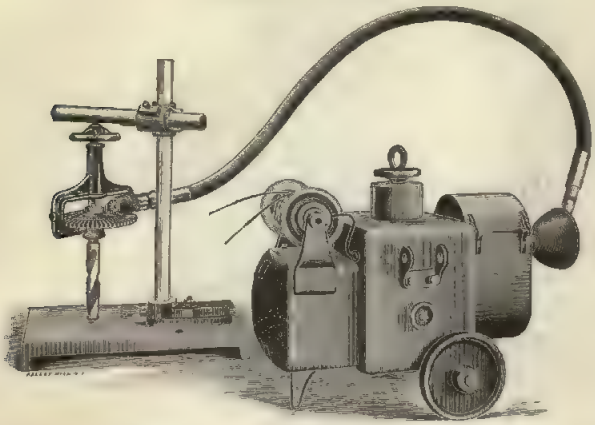


FIG 2463.

When power current is accessible this combination is one of the most practical and economical portable tools on the market.

The motor used is the Stow multi speed type, having wide range, an infinite variation in speeds between highest and lowest points.

These plants are listed as follows:

No. 4, with ½ h.p. motor, drilling capacity up to and including ½ inch . . . $188 00
No. 6, with 1 h.p. motor, drilling capacity up to and including 1 inch . . . 276 00
No. 8, with 1½ h.p. motor, drilling capacity up to and including 1⅝ inches 374 50
No. 9, with 2 h.p. motor, drilling capacity up to and including 2 inches 445 00

The above prices are for 110 or 220 volts. For 500 volts add $10.00 to the net price of the ½ h.p., $15.00 to the 1 h.p., $17.00 to the 1½ h.p., and $20.00 to the 2 h.p.

Prices on Nos. 4 and 6 are for machine as shown in cut: Vis electric motor, fitted with gear case and gears, starting and stopping box, truck reel and 60 feet insulated wire, together with Universal joint, flexible shaftless pulley head, drill press and drill rest; in fact, a complete drilling plant.

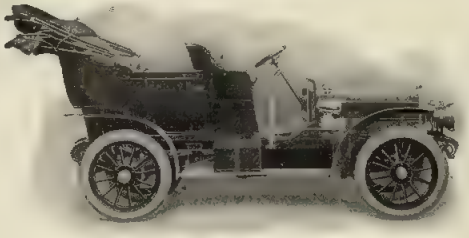
The prices of Nos 8 and 9 plants include tapping and reaming tool. When these are not required, $30.00 can be deducted from the list prices as given above.

These plants can be arranged for emery grinding as well, or we can furnish them for emery grinding only.

Simply connect the insulated wire on the reel with the power current and the machine is ready for work.

The range is only limited by the length of conducting wire on reel.

WINTON



The Most Carefully Manufactured Car in the World is the Winton Model K

Observe the precautions taken to make it the safest and most serviceable of motor cars:

Test of Strength We test exhaustively, on our Richie Testing Machine, all materials in which strength is required. This machine exerts a strain up to *200,000 pounds (100 tons) per square inch*, and by these tests we *know* that Winton material *protects your safety* a dozen times over. Note that we do not guess and take chances. Also note that we reject all material that does not satisfy our tests. Accordingly, material makers send us only their best products; the seconds go elsewhere.

Accurate Grinding We grind *all* our cylinders, pistons, piston rings, crank shafts, valves, universal couplings and transmission shafts, using tools that grind to the accuracy of 1/10,000 of an inch. Only by grinding can we secure *perfect fitting machinery*, absence of destructive friction, the use and not the waste of power, lengthened life of working parts, and interchangeability of parts.

Inspection We inspect every operation in the manufacture of Model K. By our system of factory reports we know exactly through whose hands each part passes, thus holding each employee directly responsible for his work; and by means of our corps of skilled inspectors, *no mistakes can occur* without being detected and corrected.

Test of Working Parts We test all working parts of Model K including engine, transmission, steering apparatus, running gear, etc.,—separately and assembled. These tests are so numerous and so thorough that it is impossible for any Model K to leave the Winton factory before it has been *proved perfect*.

Grinding, testing and inspection are expensive operations; but our policy is to make the very best car on the market irrespective of price, and only by our extremely careful methods is perfection possible.

Winton Model K insures your safety and gives you faithful service. For detailed information about it, write for catalogue No. 6.

The Winton Motor Carriage Co.

Cleveland, Ohio, U. S. A.

Member A. L. A. M.

WM. L. GILBERT CLOCK COMPANY'S

HIGH GRADE ENAMELED BLACK AND MARBLEIZED WOOD CLOCKS

ATHOL

(Illustration shows Scotch Granite Finish)

Height, 12½ inches. Width, 9¼ inches. 5-inch Dial.
Italian Marble, Scotch Granite or Roman Finish. Gilt Ornaments.
White, Cream or Gilt Perforated Dial. List each, $6.45

TUXEDO

(Illustrations shows Italian Marble Finish)

Height, 10¾ inches. Width, 11½ inches. 5½-inch Dial.
Rococo Sash. Gilt Ornaments, Gilt Engraved.
White, Cream or Gilt Perforated Dial. List each, $5.95

THISTLE

(Supplied only in Red Marbleized Finish, as Illustrated)

Height, 12 inches. Width, 13 inches. 5½-inch Dial.
Rococo Sash. Dark Green Metal Columns. Gilt Caps and Ornaments.
White, Cream or Gilt Perforated Dial. List each, $8.90

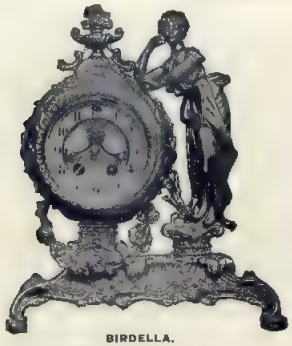
MENLO

(Illustration shows Black Enamel Finish and Green Marbleized Columns)

Height, 11½ inches. Width, 14 inches. 5½-inch Dial.
Rococo Sash. Gilt Ornaments, Gilt Engraved. Italian or Scotch Granite Marbleized Columns.
White, Cream or Gilt Perforated Dial. List each, $6.65

Above are all fitted with Eight Day Movements, striking the hours on Cathedral Gong and the half hours on cup bell.

FINE MANTEL CLOCKS.



BIRDELLA.

Eight Day. Half Hour Strike.
Height 15 inches. Width 9½ inches.
4 Inch Ivory Porcelain Dial. Visible Escapement. Round Plate Beveled Glass.

Rich Ormolu Gold Finish ..... List each $24 00
Gold and Venetian Green Finish ..... List each 24 00

FROLIC.

Eight Day. Half Hour Strike.
Height 15 inches. Width 13 inches.
4 Inch Ivory Porcelain Dial. Visible Escapement. Round Plate Bevel Glass.

Rich Ormolu Gold Finish ..... List each $30 00

TUSCAN.

Eight Day. Half Hour Strike.
Height 19 inches. Width 11½ inches.
Ivory Dial. Visible Escapement. Real Onyx Columns, Urn and Base.

Rich Ormolu Gold Finish. ..... List, each, $48.00

BEATRICE Venetian Green.

Eight Day. Half Hour Strike.
Height 15½ inches. Width 9 inches.
Ivory Dial. Visible Escapement. Venetian Green and Gold.

Rich Ormolu Gold Finish ..... List, each, $25 00

A Dry Battery made especially to meet the exacting requirements of ignition for automobile motors.

If you've had ignition troubles try the "1900 Special" cell. It will cure them.

If your battery expense has been high, the "1900 Special" will reduce it. Not because it's cheap, but because it's good.

Lock nuts prevent loose connections.

E. M. F. . . . 1.5 Volts.
Current . . 18 to 20 Amperes

THE HUNGERFORD ELECTRIC BATTERY CO. Cleveland
Gen'l Sales Office, 128 W. Jackson Blvd. Chicago

The
"Breech-Block"
Plug

MADE BY
EARL CANEDY
CHICAGO HEIGHTS
ILLINOIS

$2.50

SOLD BY

JACOBS & KING
46 Columbus Ave.
BOSTON

W. R. JOHNSTON & CO.
1338 Michigan Ave.
CHICAGO

IMPERIAL-
WIXON
COMPOUND
AIR PUMP

gives the greatest pressure with the least exertion.

The fastest and easiest working automobile tire pump.

Don't be bothered with tire troubles.

Get an Imperial-Wixon.

$5 on approval.

Try it before you buy it. Fair, is it not? Write for circular.

IMPERIAL BRASS MFG. CO.
242 So. Jefferson St., Chicago.
MOTOR CAR EQUIPMENT CO., 55 Warren St., New York
Sole Export Agents

Portable Hoist
Made of Steel—Light, Strong, Durable

One man alone can operate with load, moves easy.

Automobile manfrs. Garages, find this the right thing. Lifts any portion of automobile, remove engine, and such like.

Greater convenience as hoist and truck than stationary block and hoist or trolley

Takes the place of traveling crane and trolley, more accessible to all parts of plant. A good truck.

Invaluable in repair department.

Six standard sizes Capacities 1000 to 6000 pounds.

Prices right.

Ask for further particulars

Patent pending

WM. S. NICHOLLS
253 Broadway New York

SCROLL SAWS.

No. 1.

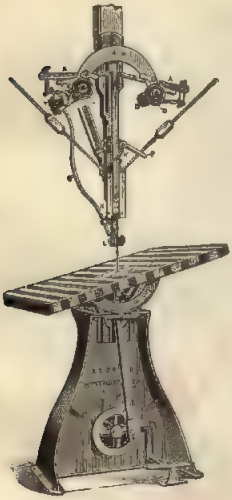


FIG. 2580

No. 4.

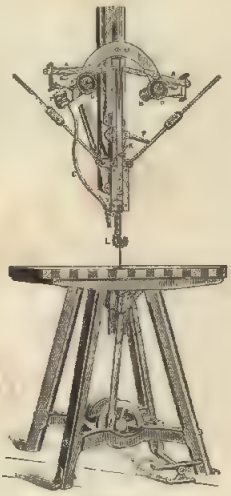


FIG. 2590.

	List Price.	Shipping Weight.	Speed of Crank Shaft.	Friction Pulley.	Size of Table
No 1 Machine	$115.00	500	825	8¾x3 in.	38x40 in.
No 2 "	105.00	450			
No 3 "	95.00	400			
No 4 "	85.00	360	885	8¾x3 in.	38x40 in.

With each machine is furnished one dozen assorted blades, also wrench for adjusting the strain springs.

No. 1 machine has tilting table.
No. 2 " " stationary table.
No. 3 " " all iron base.
No. 4 " " wood legs.

COMBINATION RIP AND CUT-OFF SAW.

WITH IRON OR WOOD FRAME.

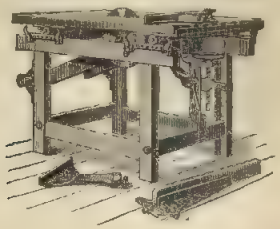


FIG. 2587

	List Price	Shipping Weight.	Speed of Coulter.	F. & L. Pulleys. Inches.	Size of Table. Inches.	Table Travel.	Diam. of Arbor.	Hole in Saws.	Arbor Pulley. Inches.	Diam. of Saws.
No 1. Iron Frame	$114 00	850	710	9x4½	34x57	23 in.	1⅛ in.	1 in.	4 x5	14 in.
No 1 Wood Frame	100 00	640								
No 3. Iron Frame	140 00	1000	610	13x5½	37x62	27 in.	1¼ in.	1¼ in.	4½x6	16 in.
No. 3 Wood Frame	126 00	770					1⅛ in.		3½x3½	
Boring Attachment.	40.00	250			14x13					
Self Centering Chuck	6.00									

With each machine is included countershaft complete, rip saw, cut off saw, arbor wrench, ripping gauge, cut-off gauge and miter gauge.

WOOD FRAME RIP SAW.

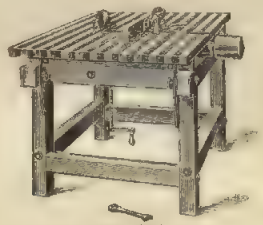


FIG. 2588.

	List Price.	Shipping Weight.	Size of Table.	Diam. of Arbor.	Hole in Saw.	Arbor Pulley.
No 0 Machine	$40 00	230	26½ x 42 in.	⅝ in.	¾ in.	3 x 8½ in.
No 1 "	50 00	300	31½ x 46 in.	1 in.	⅞ in.	4 x 4½ in.
No 2 "	60 00	350	34½ x 54 in.	1⅛ in.	1 in.	4½ x 5 in.
No 3 "	65 00	400	36½ x 57 in.	1¼ in.	1⅛ in.	5 x 6 in.
No. 4 "	70 00	480	38½ x 64 in	1⅜ in.	1¼ in.	6 x 7 in.
No. 5 "	75 00	540	41 x 66 in	1½ in.	1⅜ in.	7½ x 8 in.

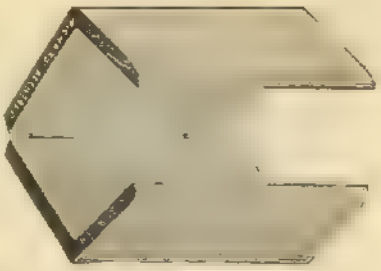
Prices are F. O. B. Factory, and include arbor wrench and ripping gauge.
In ordering always state whether pulley is wanted between the bearings or outside.

Butter Moulds.

Code Capoteeja. Per Dozen
No. 1—Fancy, One Pound, ... $4.00
Weight, 11 lbs. Per Dozen.

Code Capoocls.
No. 2—Fancy, Two Pounds, ... 5.00
Weight, 12 lbs. Per Dozen.

Code Capopiele. Per Dozen
No. 10—Round, Hinged, Two Pounds, Full Weight, ... $6.00
Weight, 22 lbs. Per Dozen.



Code Capoptyglo. Per Dozen
No. 12—Square, Hinged, Two Pounds, Full Weight, ... $6.00
Weight, 22 lbs. Per Dozen.

Butter Prints.

Code Capoocnola Per Dozen
No. 18—Hardwood, Assorted Sizes, ... $1.50
Weight, 2 lbs. Per Dozen.

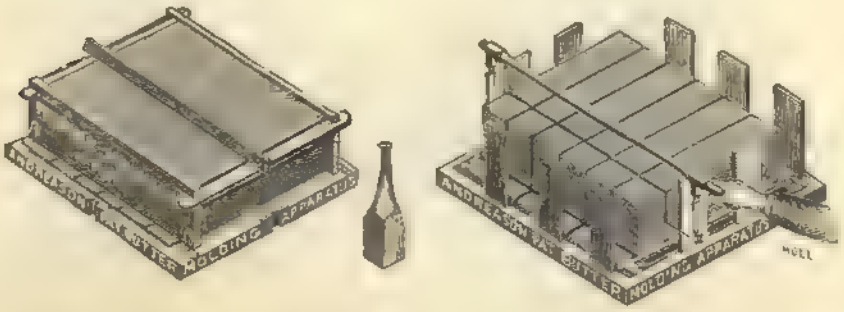
Butter Ladles.

Code Capotones. Per Dozen
No. 19—Hardwood, Extra Quality $1.00
Weight, 2½ lbs. Per Dozen.

Butter Spades.

Code Capotting. Per Dozen
No. 20—Hardwood, Extra Quality $1.50
Weight, 4½ lbs. Per Dozen.

Butter Moulds and Cutters.



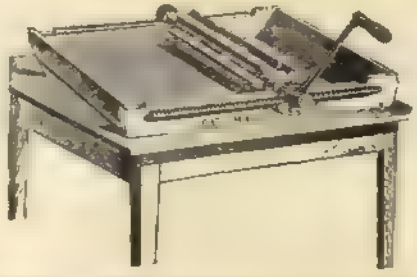
Code Capsnare. Each
No. 1—Andreason's California Pattern Butter Mould, Moulds to Hold 30 Squares, ... $7.00
Weight, 18 lbs. Each

Code Capsneleon.
No. 2—Andreason's California Pattern Cutting Frame, Complete with Bow and Fixtures, . 6.00
Weight, 14 lbs. Each.

The Bottom Frame of Mould is made of Pine, well oiled to resist moisture. Every Mould is provided with Tinned Brass Fittings, and Frame is adjustable so as to make squares perfect in size.
Cutting Frames are made of Hard Wood and Varnished, and is adjustable so as to make different weight square.

BAKER & HAMILTON

Butter Workers.



Reid's, Hand Butter Workers.

Code Capocallo. Each
No. 0—23x37x3 In. Table Works 75 lbs. Butter, ... $12.00
Weight, 67 lbs. Each.

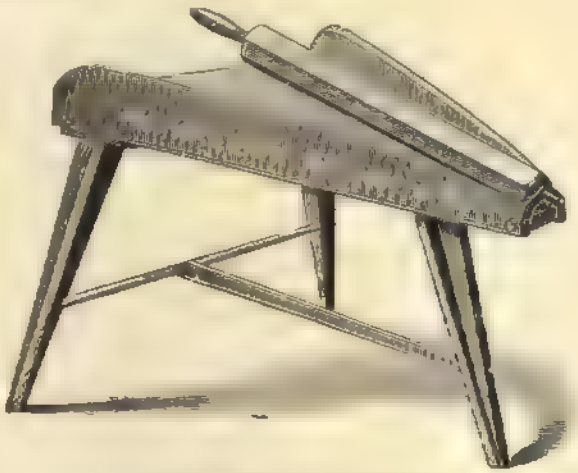
Code Capocuoco
No. 1—23x36x2½ In. Table, Works 50 lbs. Butter, ... 10.00
Weight, 54 lbs. Each.

Code Capofia.
No. 2—20x36x2½ In. Table, Works 30 lbs. Butter, ... 8.00
Weight, 47 lbs. Each.

Code Capogatto.
No. 3—17x27x2½ In. Table, Works 20 lbs. Butter, ... 7.00
Weight, 44 lbs. Each.

Code Capogitto.
No. 4—14x23x2½ In. Table, Works 10 lbs. Butter, ... 6.00
Weight, 37 lbs. Each

All Iron Parts Galvanized to Prevent Rust.



Lever Butter Worker.

Code Capolevava. Each
No. 0—20 In. Wide, Works 15 lbs. Butter $5.00
Weight, 27 lbs. Each.

Code Capolevo.
No. 1—30 In. Wide, Works 25 lbs. Butter 6.50
Weight, 40 lbs. Each.

Code Caponaba
No. 2—40 In. Wide, Works 35 lbs. Butter, 7.50
Weight, 52 lbs. Each.

Whitley Exercisers

No.		Each
00	**Ideal,** Three Pulleys, with Chart, Choice of Light or Medium Cord,	$1 00
0	**Vim,** Three Pulleys, with Long Cord, Choice of Light, Medium or Heavy Cord,	1.50
1	**Standard,** Three Fine Steel Pulleys, Choice of Light, Medium or Heavy Cord, Anderson's Physical Education with each Set,	2.00
2A	**Athlete,** Three Cocobolo Wheels and Cork Grips, Choice of Light, Medium or Heavy Cord, Anderson's Physical Education with each Set,	3.50
3	**Special,** Nickeled Parts and Cork Grip, Silk Covered Cable, Choice of Light, Medium or Heavy Cord, Anderson's Physical Education with each Set,	5 00

Dumb Bells and Indian Clubs

Maple Indian Clubs.

Highly Polished, Natural Color Black Bands.

Wt. Each, lbs.,	¾	1	1½	2	2½	3
Per Pair,	$0.50	.60	.70	.85	1.00	1.25

Maple Dumb Bells.

Highly Polished, Natural Color, Black Bands.

Wt. Each, lbs.,	¾	1	1½	2	2½	3
Per Pair,	$0.50	.60	.70	.85	1.00	1.25

Rosewood Indian Clubs.

Highly Polished, Rosewood and Gilt Finish.

Wt. Each, lbs.,	¾	1	1½	2	2½	3
Per Pair,	$0.80	.90	1.00	1.10	1.25	1.50

Rosewood Dumb Bells.

Highly Polished, Rosewood and Gilt Finish.

Wt. Each, lbs.,	¾	1	1½	2	2½	3
Per Pair,	$0.80	.90	1.00	1.10	1.25	1 50

NOTE.—All Indian Clubs and Dumb Bells are Weighed by the Piece and sold by the Pair

Wood Bench Planes

No. 2 and 03—Smooth

No. 3—Handled Smooth

No. 5 and 015—Jack

Barton—White Beech, Double Irons, Polished Start

No.		Each
2	—Smooth, 8 in. long, 1⅝ to 2 in. Cutter	$0 90
3	—Smooth, 10¼ in. long, 1¾ to 2 in. Cutter	1.00
5	—Jack, 16 in. long, 2 to 2¼ in. Cutter	$1 00

Ohio Tool Co.—Beech, Double Irons, Polished Start

No.		Each
03	—Regular Smooth, 8 in. long, 2 in. Cutter	$0.90
015	—Jack, 16 in. long, 2 to 2¼ in. Cutter	$1.00

No. 7 and 021—Fore

Barton—White Beech, Double Irons, Polished Start

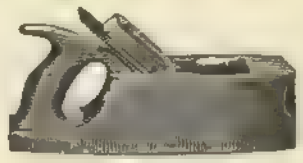
No.		Each
7	—Fore, 22 in. long, 2¼ to 2½ in. Cutter	$1 70
9	—Jointer, 26 in. long, 2⅜ to 2⅝ in. Cutter	$1 80
9B	—Jointer, 28 in. long, 2⅝ to 2¾ in. Cutter	1.90

Ohio Tool Co...Beech, Double Iron, Polished Start

No.		Each
021	—Fore, 22 in. long, 2¼ to 2½ in Cutter.	$1.40
027	Jointer, 26 in. long, 2½ in. Cutter	$1.50

Razee Ship Planes

Double Irons



Double Irons

No.		Each
3C	—Rosewood, Smooth, 1¾ in.	$5 50
3D	Rosewood, Smooth, Handled, 1¾ in	$8 00

Double Irons

Double Irons

No.		Each
5A	—White Beech, Jack, 1¾ to 2¼ in	$1 20
5AR	—Rosewood, Jack, 1⅞ in.	10.80
7A	—White Beech, Fore, 1⅞ in. to 2¼ in.	$1 90
7AR	—Rosewood, Fore, 2 in.	15.00

LAURENCE

Tea Spoons.

No. 8740	A1	$3 42
No. 8730	XII	3 96
No. 8754	Triple	4 68

Dessert Spoons.

No. 8752	A1	$6 12
No. 8753	XII	6 84
No. 8754	Triple	7 92

Table Spoons.

No. 8755	A1	$6 84
No. 8756	XII	7 92
No. 8757	Triple	9 36

Dessert Forks.

No. 8758	A1	$6 12
No. 8759	XII	6 84
No. 8760	Triple	7 92

Medium Forks.

No. 8761	A1	$6 84
No. 8762	XII	7 92
No. 8763	Triple	9 36

Butter Knives.

No. 8764	A1	$7 56

Sugar Shells.

No. 8765	A1	$4 18

Berry Spoons

No. 8766	A1 Plain	$17 28
No. 8767	A1 Gilt	23 76

Cold Meat Forks.

No. 8768	A1 Plain	$10 80
No. 8769	A1 Gilt	15 12

BERLIN

Tea Spoons.

No. 8770	A1	$3 42
No. 8771	XII	3 96
No. 8772	Triple	4 68

Dessert Spoons.

No. 8773	A1	$6 12
No. 8774	XII	6 84
No. 8775	Triple	7 92

Table Spoons.

No. 8776	A1	$6 84
No. 8777	XII	7 92
No. 8778	Triple	9 36

Dessert Forks.

No. 8779	A1	$6 12
No. 8780	XII	6 84
No. 8781	Triple	7 92

Medium Forks.

No. 8782	A1	$6 84
No. 8783	XII	7 92
No. 8784	Triple	9 36

Butter Knives.

No. 8785	A1	$7 56

Sugar Shells.

No. 8786	A1	$6 18

Berry Spoons.

No. 8787	A1 Plain	$17 28
No. 8788	A1 Gilt	23 76

Cold Meat Forks.

No. 8789	A1 Plain	$10 80
No. 8790	A1 Gilt	15 12

NEWPHAR

Tea Spoons.

No. 8791	A1	$3 42
No. 8792	XII	3 96
No. 8793	Triple	4 68

Dessert Spoons.

No. 8794	A1	$6 12
No. 8795	XII	6 84
No. 8796	Triple	7 92

Table Spoons.

No. 8797	A1	$6 84
No. 8798	XII	7 92
No. 8799	Triple	9 36

Dessert Forks.

No. 8800	A1	$6 12
No. 8801	XII	6 84
No. 8802	Triple	7 92

Medium Forks.

No. 8803	A1	$6 84
No. 8804	XII	7 92
No. 8805	Triple	9 36

Butter Knives.

No. 8806	A1	$7 56

Sugar Shells.

No. 8807	A1	$4 18

Berry Spoons.

No. 8808	A1 Plain	$17 28
No. 8809	A1 Gilt	23 76

Cold Meat Forks.

No. 8810	A1 Plain	$10 80
No. 8811	A1 Gilt	15 12

OREGON

Tea Spoons.

No. 8812	A1	$3 42
No. 8813	XII	3 96
No. 8814	Triple	4 68

Dessert Spoons.

No. 8815	A1	$6 12
No. 8816	XII	6 84
No. 8817	Triple	7 92

Table Spoons.

No. 8818	A1	$6 84
No. 8819	XII	7 92
No. 8820	Triple	9 36

Dessert Forks.

No. 8821	A1	$6 12
No. 8822	XII	6 84
No. 8823	Triple	7 92

Medium Forks

No. 8824	A1	$6 84
No. 8825	XII	7 92
No. 8826	Triple	9 36

Butter Knives.

No. 8827	A1	$7 56

Sugar Shells

No. 8828	A1	$6 48

Berry Spoons.

No. 8829	A1 Plain	$17 28
No. 8830	A1 Gilt	23 76

Cold Meat Forks.

No. 8831	A1 Plain	$10 80
No. 8832	A1 Gilt	15 12

TOURS

Tea Spoons.

No. 8833	A1	$3 42
No. 8834	XII	3 96
No. 8835	Triple	4 68

Dessert Spoons.

No. 8836	A1	$6 12
No. 8837	XII	6 84
No. 8838	Triple	7 92

Table Spoons.

No. 8839	A1	$6 84
No. 8840	XII	7 92
No. 8841	Triple	9 36

Dessert Forks.

No. 8842	A1	$6 12
No. 8843	XII	6 84
No. 8844	Triple	7 92

Medium Forks.

No. 8845	A1	$6 84
No. 8846	XII	7 92
No. 8847	Triple	9 36

Butter Knives.

No. 8848	A1	$7 56

Sugar Shells

No. 8849	A1	$6 48

Berry Spoons.

No. 8850	A1 Plain	$17 28
No. 8851	A1 Gilt	23 76

Cold Meat Forks.

No. 8852	A1 Plain	$10 80
No. 8853	A1 Gilt	15 12

Automobile Brand Aluminum Castings

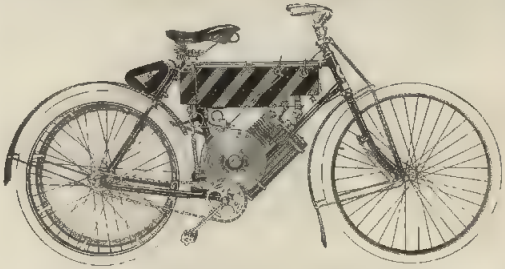
THE WORLD'S STANDARD BRAND

We are also large producers of phosphor-bronze gear and phosphor-bronze bearing castings, especially adapted for automobile and motor boat construction.

LIGHT MFG. & FOUNDRY CO.

509 QUEEN STREET POTTSTOWN, PA.

"YALE-CALIFORNIA"



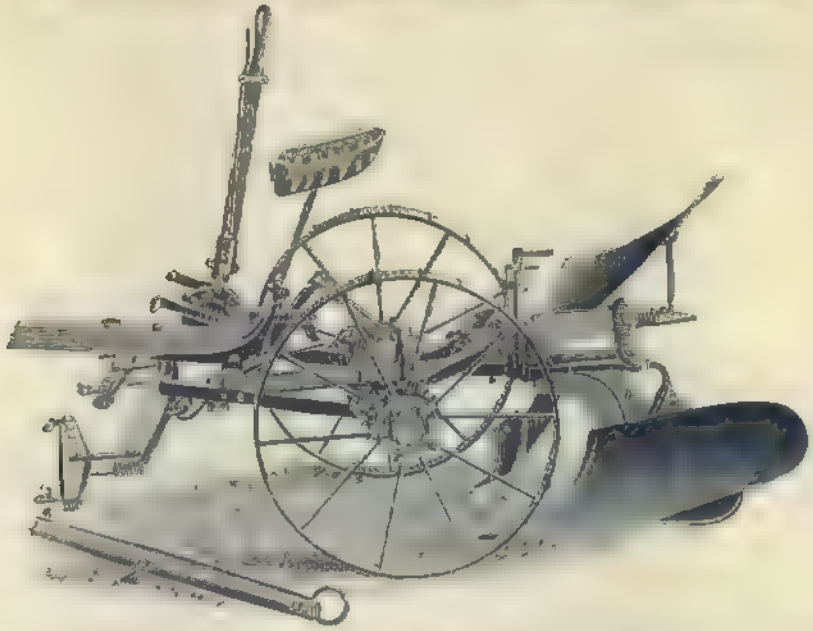
The Motor Cycle which runs all the time

The dealer who is looking for a motor cycle for the coming season, cannot make a better choice than the "YALE-CALIFORNIA." Graceful in outline and beautiful in finish, it has proved itself strong, reliable and powerful in many tests. Its chief recommendation is its economy of operation and maintenance, as it uses very little gasoline, and being so carefully constructed, is very seldom in the repair shop. The price is reasonable, and represents a good profit to the dealer.

Write at once for our agency proposition for next season. It will be to your advantage.

Consolidated Manufacturing Co. TOLEDO, OHIO : :

NATIONAL REVERSIBLE SULKY PLOW.



This plow is not an experiment, having been placed upon the market in 1885, since which time there have been several thousands sold. Unlike all other makes of riding plows, the National has been especially designed to meet the wants of Eastern farmers, and succeeds not only upon level farms, leaving them without tracks or dead furrows, but is equally adapted to stony, rough side hill farms, turning the land with the slope, and not up the hill as is the case with all one-way sulky plows.

Neck yoke, evener, whiffletrees, which answer for two or three horses abreast, are sent with each plow.

Mfrs. price, including extra points . . $55.00 Our net price $47.00

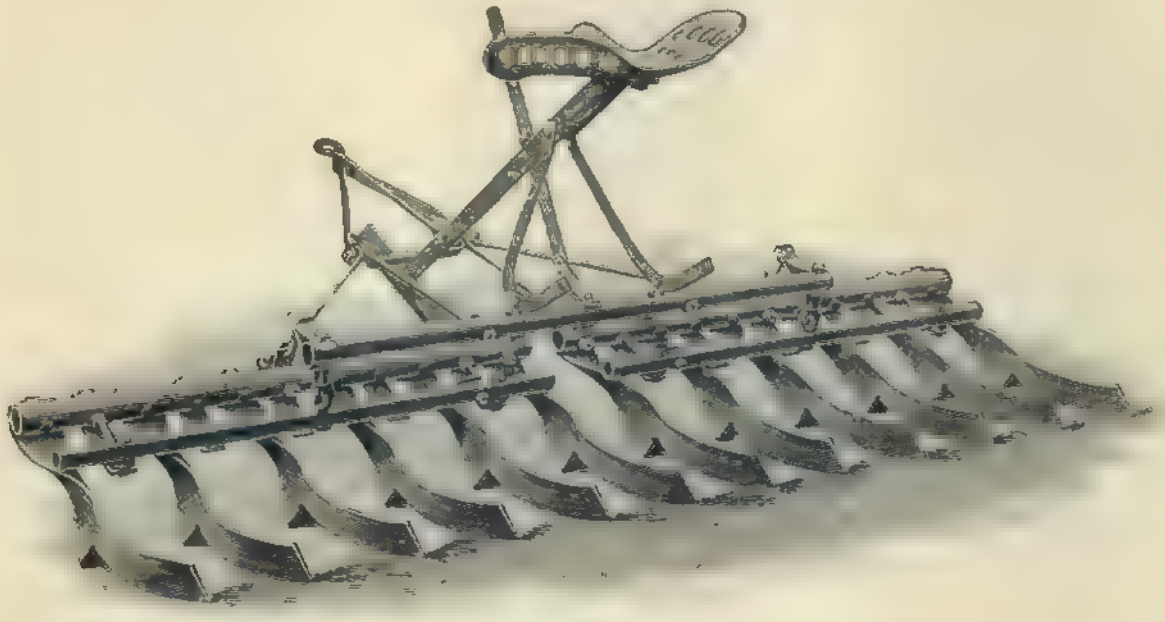
THE YANKEE SIDE-HILL OR SWIVEL PLOWS.

Number of Plow.	DESCRIPTION New Series with Spring Foot Lever	Plain		With Wheel		Wheel and Cutter		Wheel and Jointer		Wheel and Rolling Coulter.	
		List.	Net.	List.	Net.	List.	Net.	List.	Net.	List.	Net.
0 H	One Horse	$ 8.50	$ 7.50	$ 9.50	$ 8.50	$10.50	$ 9.50				
1 H	Light Two Horse	11.00	10.00	12.00	11.00	13.50	12.50				
2 H	Medium Two Horse, H. S. . .	12.50	11.50	13.50	12.50	15.00	14.00	$15.50	$14.00	$16.00	$15.00
3 H	Heavy " " " . .	13.50	12.50	14.50	13.50	16.00	15.00	16.50	15.00	17.00	16.00
4 H	Three Horse .	16.00	15.00	17.00	16.00	18.50	17.50				

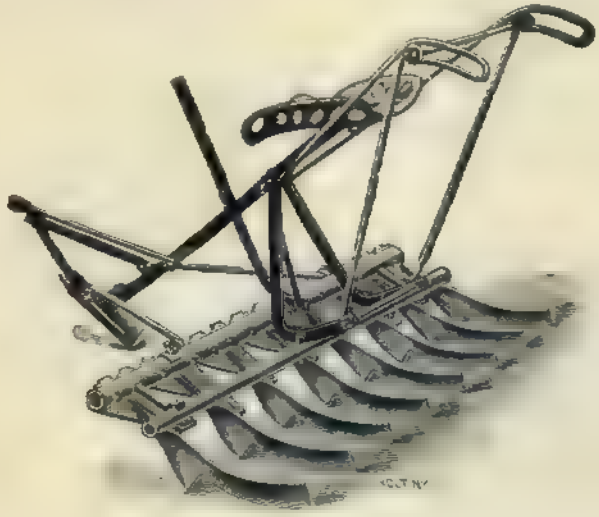
One extra share given with each plow.

Either No. 2 H, or No. 3 H, when sent out with rolling coulters, or jointers, can have our jointed straight cutter, which is fastened to the beam with a clasp, furnished when ordered. Price, $1.50.

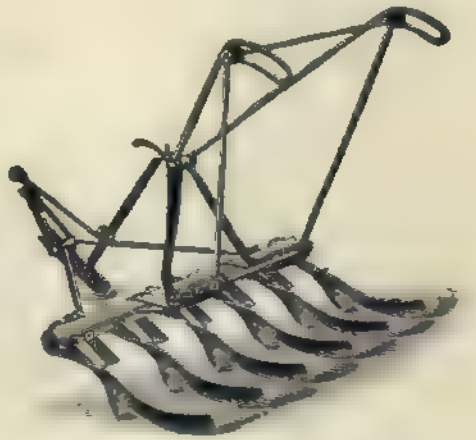
ACME PULVERIZING HARROWS.



Acme No. 23 Pulverizing Harrow. Two-horse size Riding Harrow. Works six and one-half feet wide, Flexible style. One of the very best all-purpose harrows made.



Size H. One-Horse.



Size G. One-Horse Cultivator.

The Acme Harrow is not a special tool as some have supposed, but as its name implies, a general purpose harrow that will do the whole business, viz.: it will crush, cut, lift, turn, smooth and level, all in one operation.

The peculiar shape and arrangement of the coulters insure the cutting over of the entire surface of the ground, and owing to the absence of spike, spring, or pointed teeth, there is little, if any, tendency to disturb sod or trash that has been turned under by the plow.

It will be observed that the coulters all slope backwards, thus presenting the least possible resistance, and as they are beveled and ground to an edge, the draft is reduced to a minimum.

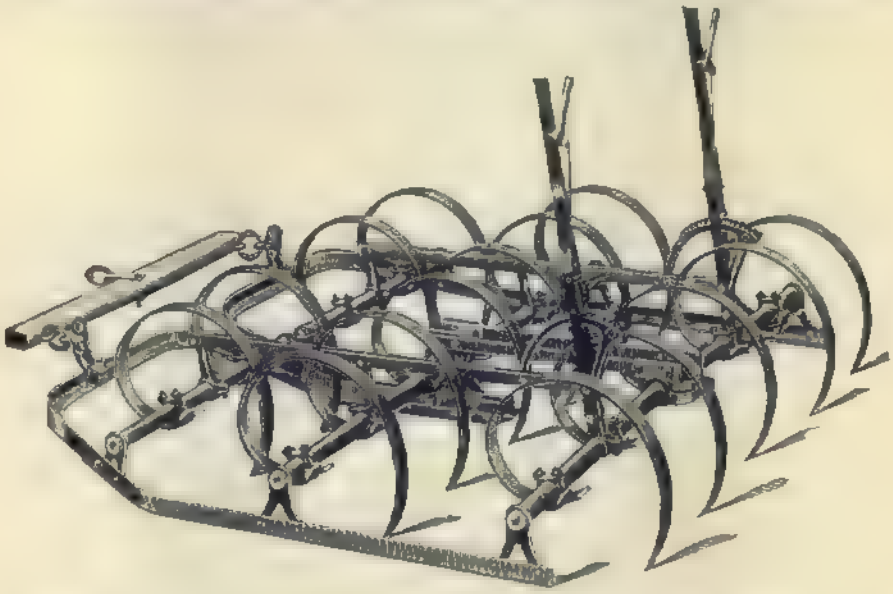
Being made entirely of cast steel and wrought iron, it is practically indestructible.

No. 23.	For two horses, 6 ft. 6 in cut, Riding Harrow	Our net price, each,	$17 00
" 25.	" " Combined Harrow and Cultivator	" "	25.00
Size H.	" one horse, 4 ft. 4 in cut	" "	14.00
" G.	" " 3 " cut	" "	9.50

BADGER ONE HORSE LEVER HARROW.

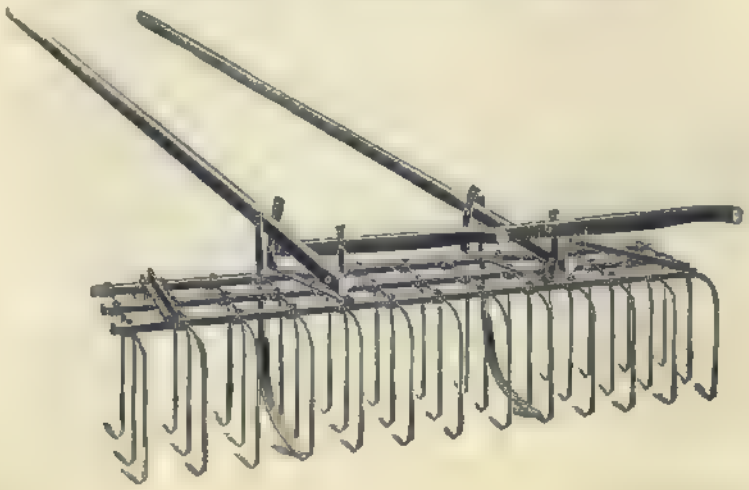
9-Tooth, 1 Section with Handles . . . . . Mfrs. price, $15.00 Our net price, $12.00

ABERDEEN SPRING TOOTH LEVER HARROW.



15-Tooth, Complete, 2 Section . . . . . Mfrs. price, $25.00 Our net price, $20.00

STANDARD WALKING WEEDER.



7½-ft. Weeder with Runners . . . . . Mfrs. price, $10.00 Our net price, $8.00

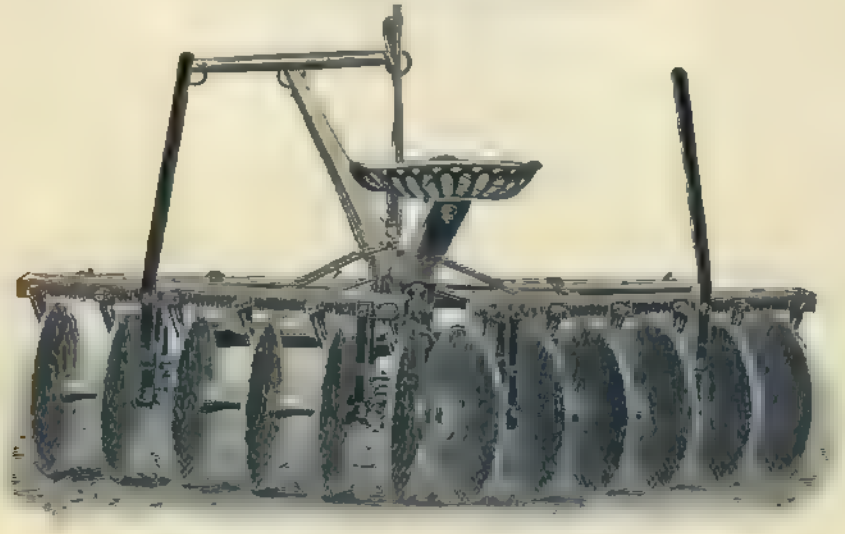
THE "MODEL B" DISC HARROW.

The most practical disc harrow on the market. The bearings are of chilled iron and are fitted with steel balls running against chilled surface to take end thrust of disc gang. Box is cast solid in one piece, and chilled on inside, and is provided with dirt proof oil cups leading into an oil chamber, which effectually lubricates the bearings at all times. Ends of bearings are protected by dust bands one-half inch long at each end.

No. 1. Twelve 16 inch discs, cuts 6 feet, complete, with whiffletrees, evener, neck yoke and scrapers.

Mfrs. price, each . . . . . $30.00 Our net price $26.00

YANKEE PULVERIZER.



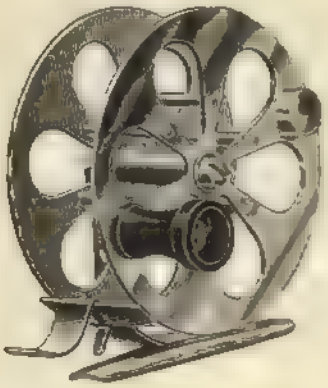
Combining all the late improvements in Disk Harrows.

No. 0.	One horse, 10 Disks, 13 inches diam., cuts 5 feet plain	Mfrs. Price, $21.00	Our Net Price, $19.00
No. 1.	One horse, 8 Disks, 16 inches diam., cuts 4 feet plain	" 22.50	" 20.00
	Extra for Scraper Attachment, ...	" 2.50	" 2.50
No. 2.	12 Disks, 13 inches diam., cuts 6 feet plain, ...	" 25.00	" 22.50
No. 4.	12 Disks, 16 inches diam. cuts 6½ feet plain, ...	" 30.00	" 27.00
	Extra for Scraper Attachment, ...	" 3.00	" 3.00
	Extra for Neck Yoke, Whiffletrees and Evener, ...	" 3.00	" 3.00

Harrows are always shipped knocked down, and unless otherwise ordered, without Scraper Attachment or Whiffletrees, Evener and Neck Yoke.

Fishing Reels

AMATEUR.



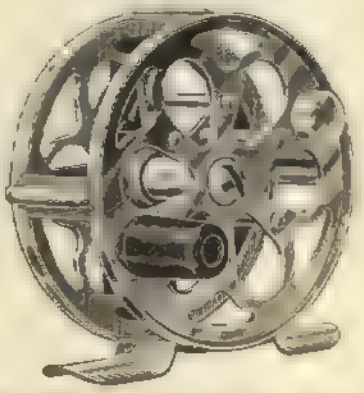
No.		Each
10	-Full Nickel Plated, Capacity 40 yards, Diameter 2¼ inches, Width ¾ inch, Weight 3 ounces, with Improved Drag,	$0.75

EXPERT.

Full Nickel Plated, for Trout or Bass Rod, Removable Spool, New Back Sliding Click

No	Yards	Diam		Each
19—	60	2¼ in.,	For Trout or Bass Rod,	$2.00
17	-100	3 in.	For Trout or Bass Rod,	2.50
22—200		3 in.	For Trolling or Salt Water,	3.25

FEATHERLIGHT.



Full Nickel Plated, Removable Spool, Back Sliding Double Pointed Steel Click, Steel Spindle

No	Yards	Diam.	Each
250N—	40	1¾ inches,	$1.00
260N	60	2¼ inches,	1.40

MARTIN'S AUTOMATIC.

Automatic, Adjustable Tension, Aluminum.

No	Holds	Each
1	-Fly Casting, 25 yards Medium Line,	$5.00
2	Fly Casting, 25 yards Casting Line,	6.00
3—Bass Casting, 50 yards Bass Line,		7.00
4—Bass Casting, 75 yards Bass Line,		8.00

YAWMAN & ERBE AUTOMATIC.

No.	**Automatic, Aluminum.**	Each
1	Carries and Rewinds 90 feet No. 5 Silk Line,	$5.00
2—Carries and Rewinds 150 feet No. 5 Silk Line,		6.00
	Combination, Automatic, Aluminum.	
A—Carries 125 feet No. 5 Silk Line, Rewinds 50 feet		$7.00
B—Carries 300 feet No. 5 Silk Line, Rewinds 90 feet,		8.00
C—Carries 600 feet No. 5 Silk Line, Rewinds 150 feet,		9.00

VALVE STEMS

NICKEL AND CARBON STEELS

We have dies for a great many varieties and sizes and can fill orders for almost any kind from stock

DIES

DROP-FORGINGS

CRESCENT FORGINGS CO.

OAKMONT, PA.

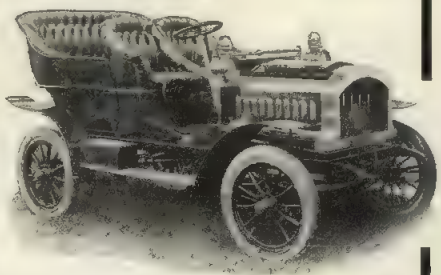
H. H. MINER, Western Rep., 11-13 So. JEFFERSON ST., CHICAGO

1905

Zent

The Air-Cooler That Cools

The ZENT engine is the only perfect cooler made. Owing to its unique construction, it keeps as cool as any water-cooled motor, and does away with all the annoyances of a water system.



ZENT Automobiles are strictly high-grade. The engine is located under the hood where it is easy of access. The shaft drive does away with noisy and greasy chains.

We also make a 2 cylinder Touring Car—$1500.00 and a 2 cylinder opposed type Runabout, 16 H. P. $1,000.00.

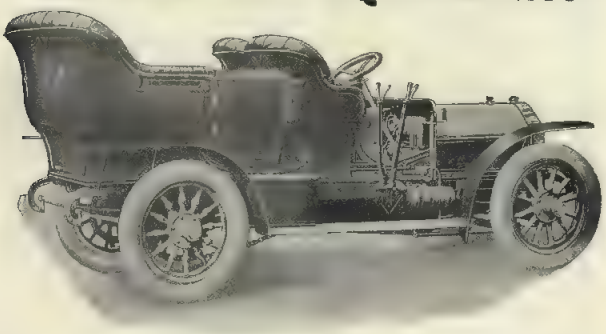
Don't fail to see our line if you are in the market for good automobile value.

4 cylinder, 24 H. P., Price $2000.00. Upholstery and finish equal to $3000.00 cars.

Zent Automobile Mfg. Co., Bellefontaine, Ohio

C	Columbia Dry Cells	O	Columbia Dry Cells	IT'S YOUR MOVE Send us an Order
Columbia Dry Cells	L	Columbia Dry Cells	U	
M	Columbia Dry Cells	B	Columbia Dry Cells	
Columbia Dry Cells	I	Columbia Dry Cells	A	NATIONAL CARBON COMPANY Cleveland, O.

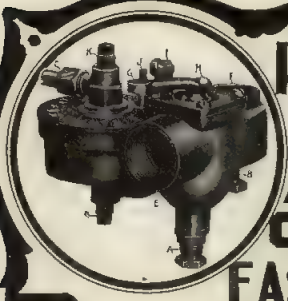
BODIES and EQUIPMENT



ONE OF OUR RECENT PRODUCTIONS

TO MANUFACTURERS: We make a specialty of designing and finishing your chassis. Supplying body, hood, fenders, etc. We have been of service to others, we can also be to you. Our facilities have been increased ten fold. We can now take your order for your season's product and save you money and annoyance. We are making bodies of all descriptions, Tonneaus, Limousines, Landaulets, etc., etc.

Reading Metal Body Co. FLEETWOOD, PA.



KINGSTON,

1906-TYPE K,

AUTOMATIC CARBURETOR

EASY *TO UNDERSTAND TO OPERATE.*

Fuel controlled entirely by equalizing automatic air valves.

Will increase POWER and CONTROL of any 1905 FORD or OLDS car, or money back.

Positively will not accumulate fuel in, or CLOG LONG INLET PIPES.

Perfectly adapted to gasolene cars, boats, airships and motors for any kind of service.

Built for business by the oldest manufacturers in the business.

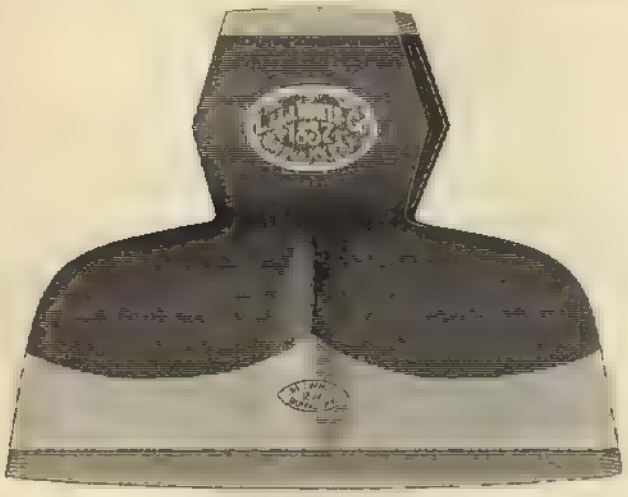
OVER 30,000 KINGSTON CARBURETORS IN USE.

KINGSTON MUFFLER

IMPROVED FOR 1906

BYRNE, KINGSTON & CO.,
KOKOMO, IND., U. S. A.

Broad Axes



No. 25—Whites, Canada Pattern

Crucible Cast Steel, Polished Head and Bit, Painted Black

Weight, lbs	6½	7	7½	8
Width Cut, in	10½	11	11½	12
Per Doz	$45.00	45.00	45.00	45 00

Beatty, Canada Pattern

Superior Quality Cast Steel, Polished Head and Bit, Gold Bronzed

Weight, lbs	6½	7	7½	8-
Width Cut, in	11½	12	12½	13-
Per Doz	$44.00	44 00	46 00	46.00

One-Half Dozen in a Case

Ship Carpenters Broad Axes

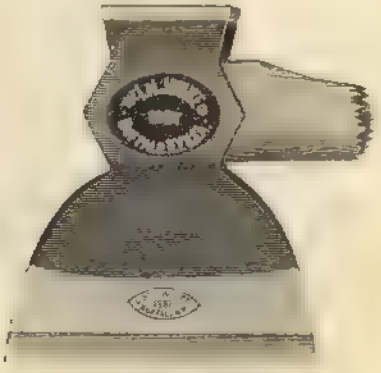
No. 46—Whites

Crucible Cast Steel, Polished Head and Bit, Painted Black, Length 11 in.

No.	1	3	4	5
Width Cut, in	6	6½	6¾	7
Weight, lbs	4¾	5	5¼	5½
Single Bevel, per Doz	$36 00	36 00	36 00	36 00
Double Bevel, per Doz	36 00	36.00	36.00	36.00

One-Half Dozen in a Case

Hand Axes



No. 27—Whites—Single Bevel

Crucible Cast Steel, Polished Head and Bit, Painted Black

No.	8	7	6	5
Width Cut, in	4	4½	5	5½
Weight, lbs	2¼	2½	2¾	3
Per Doz	$13.00	13 00	13 00	14 00

One-Half Dozen in a Box

Atha Hatchets

Hand Forged Finished, Made from Special High Grade Steel

Shingling

No.	Per Doz.
1—Width Cut 3½ in	$ 8 00
2—Width Cut 3⅞ in	8 50
3—Width Cut 4⅜ in	9.00

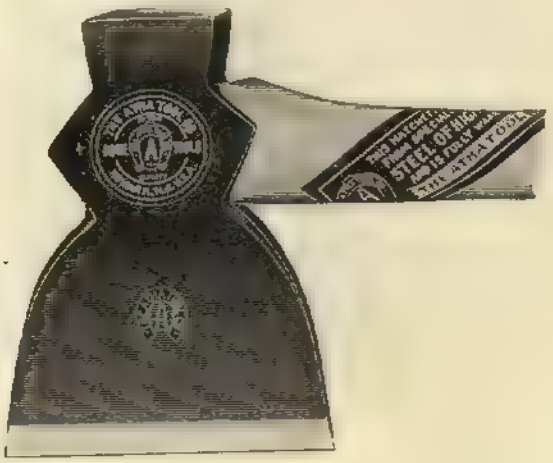
Claw

No.	Per Doz
1—Width Cut 3½ in	$ 9 00
2—Width Cut 3⅞ in	9.50
3—Width Cut 4⅜ in	10.00

One Half Dozen in a Box

Half

No.	Per Doz
1—Width Cut 3½ in	$ 8.50
2—Width Cut 3⅞ in	9.00



Broad

No.	Per Doz
2—Single Bevel, Width Cut 4½ in	$11 50
3—Single Bevel, Width Cut 5 in	13 00
4—Single Bevel, Width Cut 5½ in	14 50
5—Single Bevel, Width Cut 6 in	16 50
6—Double Bevel, Width Cut 6½ in	18 00

One-Half Dozen in a Box

The Pittsburgh & Lake Erie Railroad

Exactly at Nine O'clock

Each morning in the year, the "Buffalo Limited" leaves Pittsburgh and the "Pittsburgh Limited" leaves Buffalo.

Six Hours

later the two trains arrive at their destination. The equipment and service is the best to be obtained. The schedule faster than any other. See that your ticket reads via Pittsburgh & Lake Erie and Lake Shore & Michigan Southern Railways.

L. A. ROBISON
General Passenger Agent
PITTSBURGH - PA.

Portland Consolidated Railway Company

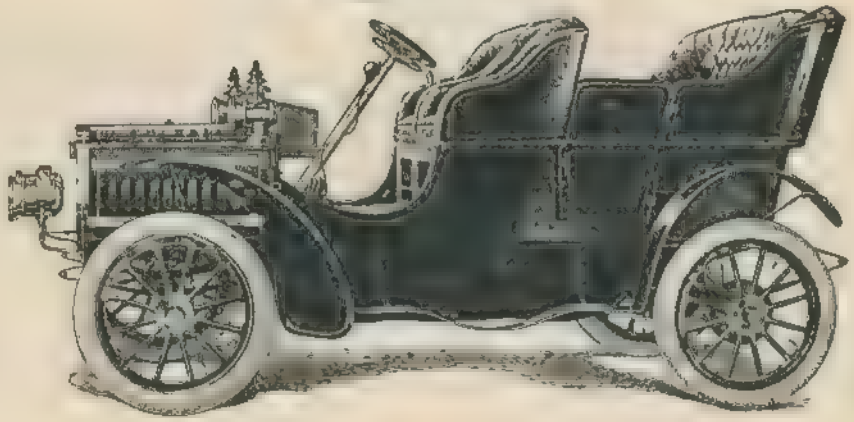
Operates 116 Miles of Track :: :: Equipment 275 Cars

PORTLAND CONSOLIDATED RAILWAY COMPANY'S STEAM FERRY CROSSING COLUMBIA RIVER

ALL of Portland's 140,000 population are served by the lines of this Company. ¶The famous PORTLAND HEIGHTS LOOP LINE takes the visitor through a fine residence district of the city to an elevation of 800 feet above the harbor, giving an unrivalled view of the City of Portland, river and bridges and adjoining country; also the whole of the Cascade Range with the perpetually snow-capped peaks of Mt. Hood, Mt. Adams, Mt. St. Helens and Mt. Ranier. ¶A trip over the lines of this Company to Vancouver, Washington, furnishes a charming trolley ride of seven miles and a trip across the mighty Columbia on steam ferry boat. At this point are located the VANCOUVER BARRACKS, one of the finest military post of the U. S. Army, and headquarters of the Department of the Columbia. ¶The lines of this Company also run to WILLAMETTE HEIGHTS, LEWIS AND CLARK FAIR GROUNDS, CEDAR PARK and DRY DOCKS at St. Johns, RIVERVIEW CEMETERY, CITY PARK and MT. TABOR.

GENERAL OFFICES: Mohawk Building, Third and Morrison Streets, PORTLAND, OREGON

Rambler



Rambler Surrey, Type One, 1903 Model
2 cylinders, 16 actual horse power. $1350
Other models $750, $850, $2000, $3000

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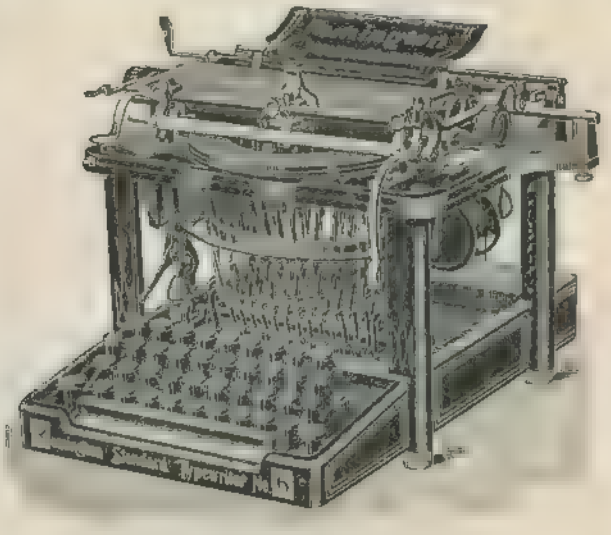

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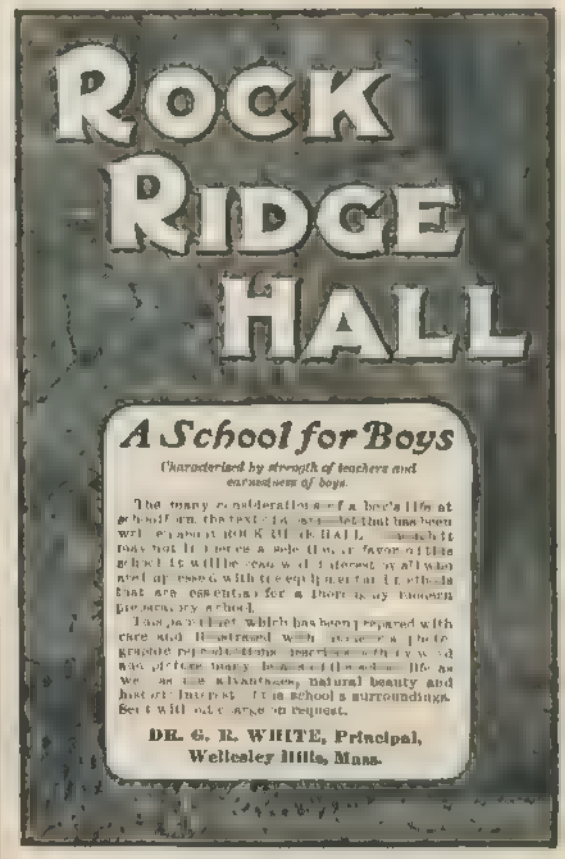
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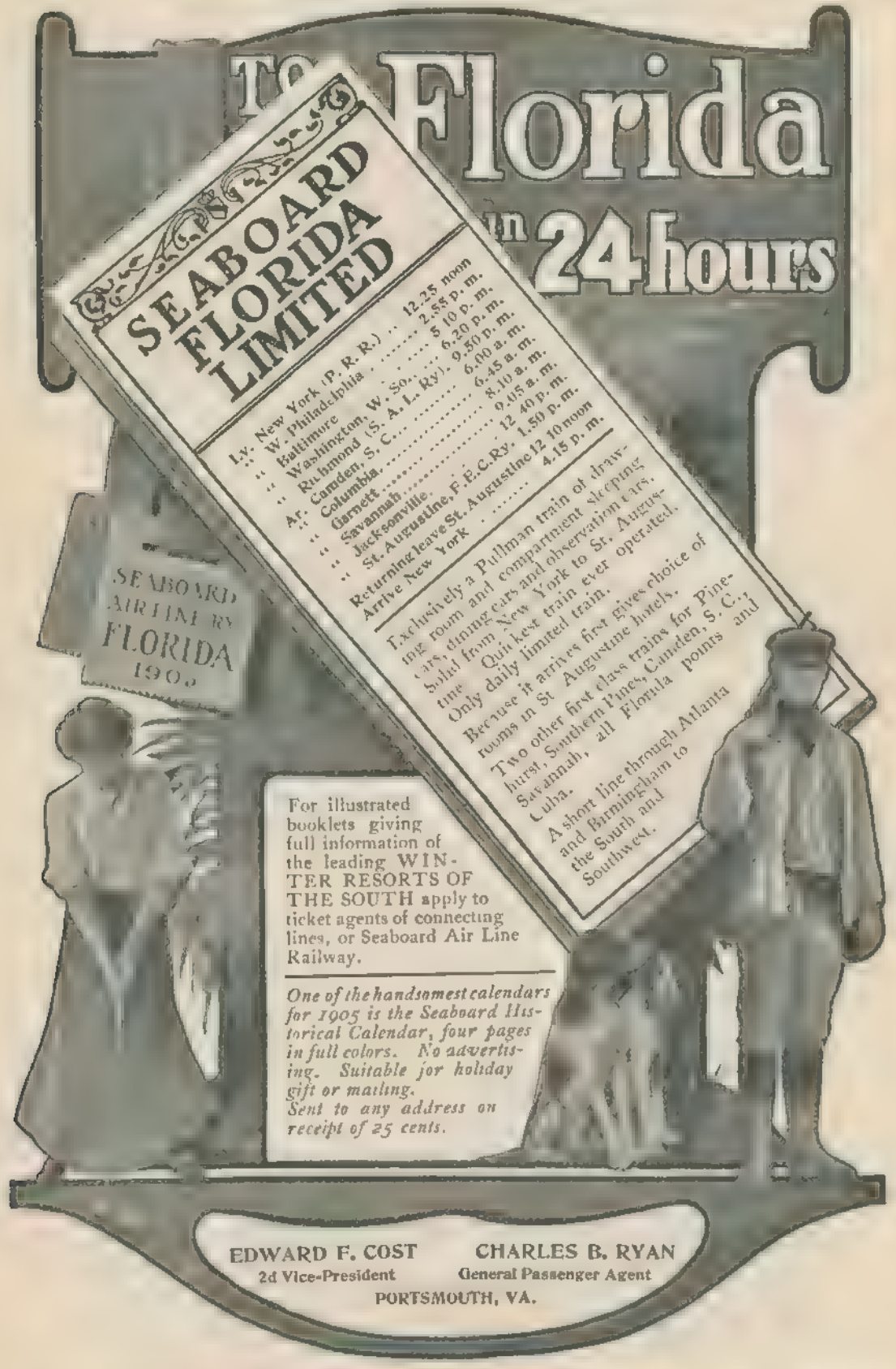
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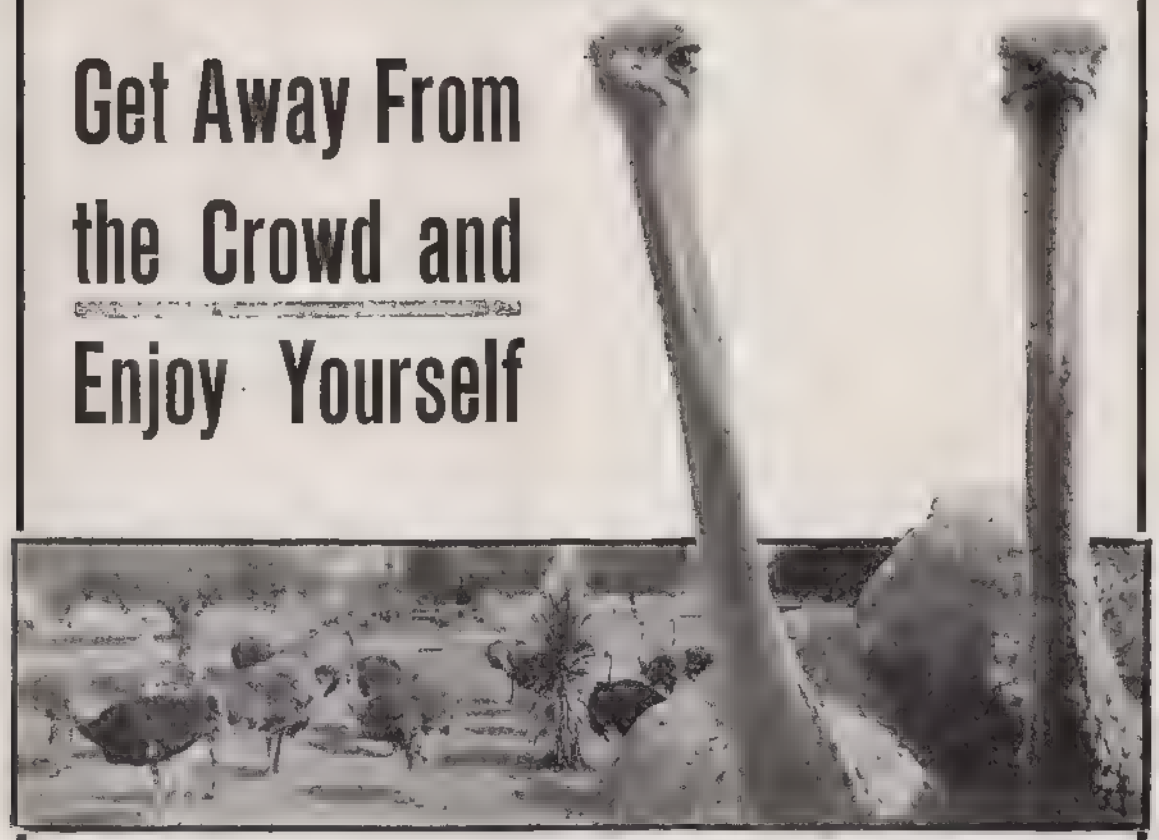

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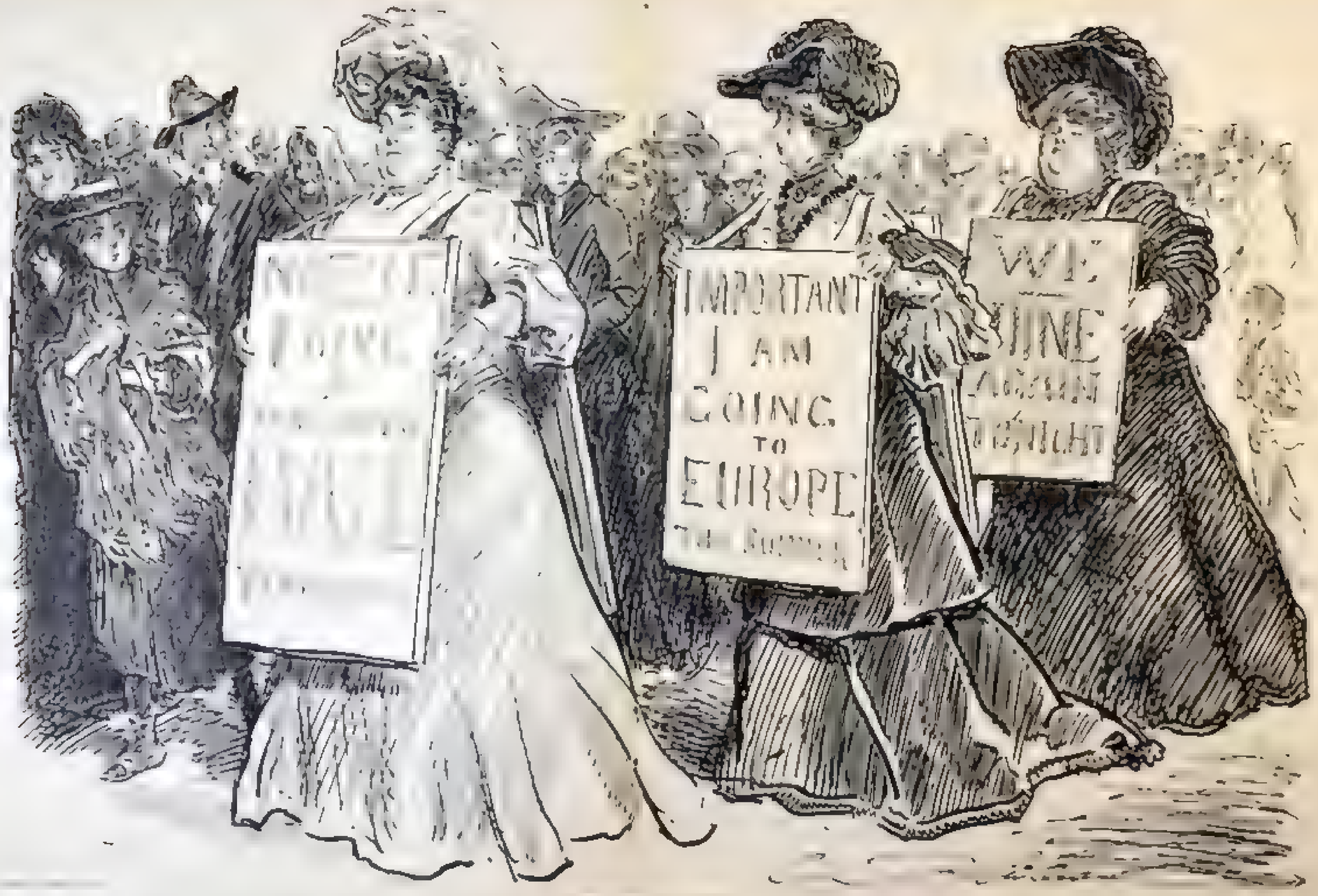
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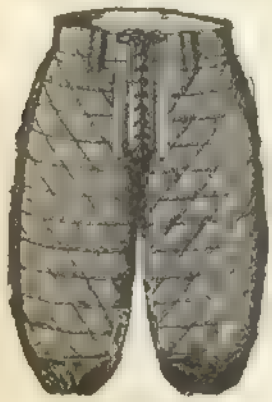

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Elastic or Tape Bottom, with or without Padding.

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Compartments for shoes, extra cloth curtains which prevent wrinkles, especially designed to roll, making a neat package and convenient to carry, complete with handle and straps

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Colors: White, Maroon, Scarlet, Navy Blue, Royal Blue, Green and Black.

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No. 4 REV-O-NOC—Heavy weight cotton, all colors except green..... per pair .50
No. 5 REV-O-NOC—Regular weight cotton, all colors except green or white....per pair 42

Nos. 0, 1, 2, 3 are made with white feet unless otherwise ordered

Colors: Scarlet with Navy Blue Stripe, Navy Blue with White Stripe, White with Crimson Stripe, Crimson with White Stripe, Scarlet with White Stripe, Black with Orange Stripe. Any other combination of colors on all except No. 04.

No. 00 REV-O-NOC—Extra heavy weight worsted.....per pair $2 40
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No. 02 REV-O-NOC—Regular weight worsted per pair 1 6
No. 03 REV-O-NOC—Regular weight wool, per pair..... 1.30
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Any Style, to Match Uniform.

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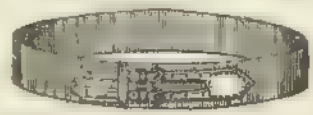
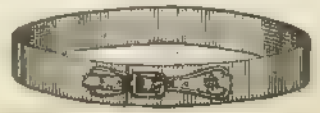


No. 3 REV-O-NOC—Regulation web, 2½ in. wide, double strap, leather covered buckles; colors red, blue, black, white, navy blue and maroon.....each $0.70
No. 5 REV-O-NOC—Crystal plated buckles, otherwise same as No. 3.....each .42



No. 7 REV-O-NOC—Amateur web, 2½ in. wide, single strap, tunned buckle, round chafes; colors: red, blue, black, white, navy blue and maroon.....each $0.34

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Are made from the very best material obtainable in their respective grades and are especially woven for athletic purposes. The most tenable colors have been selected, which, combined with the high standard of workmanship, enables us to guarantee satisfaction.

Special attention is given to trimmings and other details in designing. Each uniform lettered with name of club.

In Ordering Uniforms State

Style shirt wanted, whether button or lace front.

Style pants wanted, whether plain or padded, elastic or tape bottom. Style cap wanted (see cuts.)

Stockings, color wanted. Sample color card and measurement blanks furnished on application.

Colors.

White, pearl blue, Yale gray, steel gray, black, maroon, navy blue, dark green.

Suits, Consisting of Pants, Shirt, Cap, Belt and Stockings.

"REV-O-NOC."

No. M8 REV-O-NOC -Athletic flannel with handsome diagonal weave, pants full 8 oz., padded any style or plain drill lined, shirt full 8 oz., lace, button or open front; cap any color and any style; hose good quality worsted, any color to order; belt, web, leather lined.....per suit $24 50

This is an exceptionally well made and serviceable uniform

No. N8 REV-O-NOC—Genuine athletic flannel, diagonal weave, a serviceable and handsome pattern with stripes worked in; pants full 6 oz., any style or plain, drill lined; shirt, full 6 oz., lace, button or open front; cap any color and any style; hose, good quality worsted, any color or striped; belt web, leather lined, double stitched throughout, best of finish and workmanship, per suit . 20 55

No. O8 REV-O-NOC—Genuine athletic flannel, plain weave; pants, full 6 oz. padded any style or plain, drill lined; shirt, full 6 oz., lace, button or open front; cap any style and any color; hose, best worsted, any color or striped, belt web, leather lined, per suit 18 10

No. P8 REV-O-NOC—A new light weight flannel with diagonal weave and makes a very good uniform, pants full 6 oz., padded any style or plain, drill lined; shirt, full 6 oz., lace, button or open front; cap, any style or color; hose, heavy wool, any color or striped, belt, two strap cotton.....per suit 15 00

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No. S8 REV-O-NOC—A very good but light flannel, diagonal weave, full 5 oz; pants padded, any style or plain, drill lined; shirt, lace, button or open front; cap, any color and style hose, heavy ribbed cotton in the following colors only Black, navy, crimson, white, scarlet and royal blue, with one 4-inch stripe around calf, black with white stripe, navy with white stripe, crimson with white stripe, white with crimson stripe, scarlet with either navy or white stripe, black with orange stripe; belt, two strap cotton, any color, per suit..... 12 10

REV-O-NOC UNIFORMS.

No. T8 REV-O-NOC—A very good heavy weight flannel, plain weave, full 7 oz., having the body necessary to make suit hold its shape, pants padded any style, or plain, drill lined, shirt, lace, button or open front; cap, any style and color; hose, heavy ribbed cotton, can be furnished in the following colors only: Black, navy, crimson, white, scarlet and royal blue, with one 4-inch stripe around calf, black with white or orange stripe, navy with white stripe, crimson with white stripe, white with crimson stripe, scarlet with navy or white stripe, belt, two strap cotton, any color.....per suit $12 00

No. U8 REV-O-NOC—A good grade flannel, diagonal weave; pants quilted or plain, plain pants are lined with heavy drill unless otherwise ordered, shirt, lace, button or open front; cap any color and style; hose, heavy ribbed cotton, colors same as in No. T8, belt one strap cotton, any color.. per suit 9 60

No. W8 REV-O-NOC—A good grade heavy flannel, plain weave, pants padded, any style or plain, drill lined; shirt, lace, button or open front; cap, New York Boston, Chicago and University styles only; hose, ribbed cotton, can be furnished in the following colors. Black, navy, white, scarlet and crimson, with one 4-inch stripe around calf, crimson with white stripe, scarlet with navy stripe, navy with white stripe, black with white or orange stripe, crimson with black stripe, royal blue with white stripe, belt cotton, one strap.....per suit 8 40

A very serviceable suit.

No. Y8 REV-O-NOC—A light weight flannel, very serviceably made, in white, pearl, blue, steel gray, pearl gray, tan, maroon and dark blue; pants padded, any style or plain, lined; shirt, lace, button or open front; cap, New York, Boston, Chicago and University styles only, hose ribbed cotton, same colors as in No. W8 belt, adjustable buckle, per suit..... 7 00

No. Z8 REV-O-NOC—A very serviceable light weight flannel plain weave; pants any style, plain, lined with drill unless otherwise ordered; shirt, lace, button or open front; cap, New York Boston, Chicago and University styles only; hose, ribbed cotton, in black, navy, white, scarlet and crimson only, belt, two inch cotton, one strap ...per suit 5 16

No. 650—A light weight serviceable flannel, in gray only, pants, plain only, lined unless otherwise ordered; stock sizes, waist 30, 32 34 36, shirt button, front only, stock sizes, chest 36, 38, 40 42; cap, New York Boston, Chicago and University only; hose, heavy ribbed cotton, colors same as in No. W8, belt two inch cotton, adjustable buckle.....per suit 7 40

BOYS' UNIFORMS.

No. 44—JUVENILE, good quality denim, pants with elastic at knee, shirt button front, ages 8, 10, 12, 14.....per suit $1 60

Made in four color combination: Maroon with gray trimming, blue with white trimming, gray with maroon trimming, white with blue trimming. Shirt and pants are of one color, the collars, cuffs and peak of cap of another color.

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Single Breasted with Large Pearl Buttons, 4 in. Letter on Pocket.

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Double Breasted or Norfolk with Large Pearl Buttons, 4 in. Letter on Pocket.

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No. US88 REV-O-NOC Material same as No. S8 uniform..... each 9 75
No. UT88 REV-O-NOC—Material same as No. T8 uniform..... each 9 75
No. UV88 REV-O-NOC—Material same as No. V8 uniform..... each 12 00
No. UW88 REV-O-NOC -Material same as No. W8 uniform..... each 1 35

EXTRAS ON BASE BALL UNIFORMS.

Detachable Sleeves . .extra, per pair	$0.40
Corded Seams on Pants " "	.40
Corded Seams on Caps.... " each	.30
Felt Letters on Caps.....	.14
Silk Letters on Caps..... "	.70
Lettering, other than name of club, per letter.....	.06

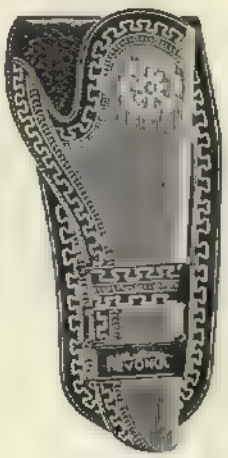
PISTOL HOLSTERS.

Nos. 732 to 744½.

Nos. 832 to 844.

Nos. 807 and 808

Nos. 1232 to 1245.



Nos. 944 to 944½.

Nos. 1038 to 1045.

Embossed Leather, without Flap.

No. 732 —For 32 caliber, automatic ejector and hammerless revolvers, 3 and 3½ in. barrel, - per dozen $3.60
No. 752 —For same revolvers, with 5 in. barrel, " 4.80
No. 738 —For 38 caliber, automatic ejector and hammerless revolvers, 3¼ in. barrel, also Colt's New Police, Colt's new pocket, 3½ in., and Smith & Wesson's hand ejector, 3¼ in., - - - - per dozen 4.00
No. 748 —For same revolvers as No. 738, with barrels 4 to 4¼ in., - - - - - per dozen 5.00
No. 758 —For same revolvers as No. 738, with 5 in. barrels, - - - - - - per dozen 6.00
No. 768 —For same revolvers as No 738, with 6 in. barrels, - - - - - - per dozen 6.00
No. 741 —For 41 caliber, 4½ in., new army and new navy, and 4 and 5 in. military and police, per dozen 6.00
No. 761 —For same revolvers as No. 741, with 6 and 6½ in. barrels, - - - - - per dozen 6.50
No. 744½—For all calibers, Colts, S. A., Bisley model and new service revolvers, with 4½ and 5½ in. barrels, per dozen, - - - - - - - - - 6.00
No. 744 —For same revolvers as No. 744½, with 7½ in. barrels, - - - - - - - per dozen 6.00

Embossed Leather, with Flap

No. 832 —For same revolvers as No. 732, - per dozen $4.80
No. 852 —For same revolvers as No. 752, - " 5.00
No. 838 —For same revolvers as No. 738, - " 5.00
No. 848 —For same revolvers as No. 748, - " 6.00
No. 858 —For same revolvers as No. 758, - " 6.00
No. 868 —For same revolvers as No. 768, - " 6.00
No. 841 —For same revolvers as No. 741, - " 6.50
No. 861 —For same revolvers as No. 761, - " 6.50
No. 844½—For same revolvers as No. 744½, - " 7.00
No. 844 —For same revolvers as No. 744, - " 7.35

Automatic Pistol, Embossed Leather, with Flap.

No. 805—For 38 Colt automatic pocket, - per dozen $6.00
No. 806—For 32 Colt automatic pocket, - " 6.00
No. 807—For 7.65 Luger automatic, - - " 6.75
No. 808—For 38 Colt automatic sporting and military models, - - - - - - - per dozen 6.50

Handy, Embossed Leather.

No. 1232—32 caliber, for Colt's automatic, embossed leather, with fastener on top for suspender and two flaps cut to fit buttons on trousers, - - - per dozen $12.00
No. 1238—For 38 Colt's and 7.65 Luger pistol, otherwise same as No. 1232, - - - - - per dozen 12.00
No. 1245—For Colt's new navy, new service, military and single action revolvers, otherwise same as No. 1232, per dozen, - - - - - - - - - 12.00

"Rev-o-noc," Mexican Pattern, Finely Embossed, Extra Heavy

No. 944 —For 44 and 45 caliber, Colt's S. A. revolvers, with 7½ in. barrel, - - - - - per dozen $12.00
No. 944½—For 44 and 45 caliber, Colt's S. A. revolvers, with 5½ in. barrel, - - - - - per dozen 12.00
No. 944¾—For 44 and 45 caliber, Colt's S. A. revolvers, with 4¾ in. barrel, - - - - - per dozen 12.00

Above holsters match Nos. 630, 644 and 645 cartridge belts.

Shoulder Holster, Finely Embossed.

No. 1038—For 38 caliber, 3¼ in. revolvers, - per dozen $12.00
No. 1041—For 41 caliber, 4½ in., new army and navy revolvers, - - - - - - - - per dozen 15.00
No. 1044—For 44 caliber, 4¾ in. and 5½ in., S. A. and new service revolvers, - - - - - per dozen 18.00
No. 1045—For 45 caliber, 6 in. revolver, - - " 18.00

Nos. 1932½ to 1944½.

Nos. 1132 and 1138.

Patent Rubber, Perspiration Proof, without Hook.

No. 1932—32 caliber, - - - - per dozen $3.00
No. 1938—38 caliber, - - - - " 3.50

Patent Rubber, with Hook.

No. 1932½—32 caliber, - - - - per dozen $3.75
No. 1938½—38 caliber, - - - - " 4.50
No. 1944½—44 caliber, - - - - " 5.00

Police, Heavy Embossed Russet Leather.

No. 1132 —32 caliber, - - - - per dozen $6.00
No. 1138 —38 caliber, - - - - " 6.00
No. 1138S—For 6438 S. & W. revolver, - " 7.20
No. 1138C—For 8738 Colt's revolver, - - " 7.20
No. 1134 —For police positive 4 in. barrels, - " 6.00
No. 1135 —For 38 caliber Colt's automatic, - " 6.00
No. 1136 —For 32 caliber Colt's automatic, - " 6.00

GUN CASES.

No. 63.

No. 63—Russet color seal grain chased Pegamoid, nickel plated trimmings, leg o'mutton pattern, w't per doz. 46 lbs., - **per dozen $50.00**

REV-O-NOC

REV-O-NOC

Nos. 60 and 62.

No. 60 Heavy russet leather, brass trimmings, flannel lined, to buckle, handle and adjustable sling, rod pocket under partition, w't per doz. 30 lbs., - - - - - - - - - - - - - - - - - per dozen $60 00
No. 62 "Rev-o-noc," heavy russet leather, flannel lined, brass trimmed, lock buckle, handle and adjustable sling, w't per doz. 42 lbs., per dozen, - 57.00
No. 62T—"Rev-o noc," with outside tool pocket, otherwise same as No 62, w't per doz 52 lbs., - - - - - per dozen 70 00
No. R62—"Rev-o-noc," made especially for Marlin and Winchester take down guns, otherwise same as No. 62, w't per doz. 42 lbs., per dozen, - 57.00
No. R61—"Rev-o-noc, ' with extra partition for 28 in. barrel, otherwise same as No R 62, - - - - - per dozen 75 00

No. O F.

No 62B

No. OF—"Rev-o-noc," heavy russet leather, flannel lined, brass trimmed, with lock buckle, handle and adjustable sling, French style, 30 and 32 in., for double barrel or repeating shot guns, - - - - - - - - - - - - per dozen $60.00
No. 62B—"Rev-o-noc," heavy russet leather, flannel lined, brass trimmed, lock buckle, handle and adjustable sling for Browning automatic guns only, w't per doz. 54 lbs., - - - - - - - - - - - - - per dozen 61.00
No. 64B—"Rev-o-noc," with extra partition for 28 in. barrel, otherwise same as No. 62B, - - - - - " 75.00

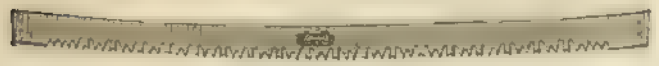
REV-O-NOC

REV-O-NOC

No. 70 "Rev o-noc," finest quality heavy weight russet leather, flannel lined, brass trimmed, lock buckle, outside tool pocket, handle and adjustable sling, for 30 and 32 in. barrels, - - - - - - - - - - - - - per dozen $84.00

CROSS-CUT SAWS.

HOLLOW BACK, CHAMPION TOOTH.



"OUR VERY BEST".

Finest Crucible Steel, Specially Hardened and Tempered, Taper-Ground, Polished, without Handles.

~~CVD~~—Feet	5	5½	6	6½
Weight	3½	3¾	4	5 lbs
Each	$1.80	1.98	2.16	2.34

AJAX, Cast Steel, Polished, without Handles.

No. 7—Feet	5	5½	6	6½
Weight	3½	4¼	4¼	5 lbs.
Each	$1 80	1.98	2 16	2 34

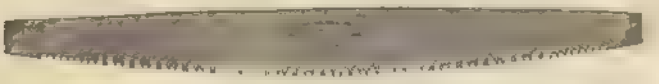
DISSTON'S Cast Steel, Polished, without Handles.

No. 8—Feet	5	5½	6	6½
Weight	3½	4	4½	5 lbs.
Each	$1 80	1.98	2.16	2 34

CHAMPION TOOTH.

AJAX, Cast Steel, Polished, Thin Back, Graduated from 14 to 16 Gauge without Handles.

No. 9—Feet	5	5½	6	6½	7
Weight	7¼	8	8½	9	9½ lbs
Each	$2.70	2.97	3 24	3 51	3 78



DISSTON'S, Cast Steel, Polished, Thin Back, Graduated from 14 to 16 Gauge, without Handles.

No. 2—Feet 4½	5	5½	6	6½	7
Weight 5½	6½	7	8	9½	10¼ lbs.
Each $2 43	2.70	2.97	3.24	3.51	3.78

DISSTON'S, Cast Steel, Polished, Extra Thin Back, Graduated from 14 to 18 Gauge, without Handles.

No. 1—Feet	4	5	5½	6	6½
Weight	4½	5½	6½	7	7½ lbs
Each.	$2 40	3.00	3.30	3.60	3.90

COMMON TOOTH.

DISSTON'S, Cast Steel, Patent Ground, without Handles.

No 5—Feet	4	4½	5	5½	6
Weight	4½	4	5½	6½	7 lbs
Each	$2 32	2 61	2.90	3.19	3 48

TUTTLE TOOTH.

"OUR VERY BEST".

Finest Crucible Steel, Especially Hardened and Tempered, Taper-Ground, Polished, Graduated 14 to 19 Gauge, without Handles.

~~CVD~~—Feet	5	5½	6	6½
Weight	5	6	6¾	7½ lbs.
Each	$3 00	3 30	3.60	3.90

The foundation of these saws is a special process steel, carefully inspected and tested in order to insure uniformity. Great care has been given to hardening and tempering to secure the proper degree of hardness and toughness.

DISSTON'S, Spring Steel, Extra Thin Back, Graduated from 14 to 19 Gauge, without Handles.

No. 3—Feet	5	5½	6	6½
Weight	4½	5½	6¾	7½ lbs.
Each	$3 00	3 30	3.60	3.90

ATKINS', Cast Steel, Graduated from 14 to 18 Gauge, without Handles.

No 4—Feet	5	5½	6	6½
Weight	5	6	7	7¾ lbs
Each	$2 50	2 76	3.00	3.26

ATKINS', Cast Steel, Graduated from 14 to 19 Gauge, without Handles.

No. 5—Feet	5	5½	6	6½	7
Weight	5	5½	6¼	7¾	9 lbs.
Each	$3 00	3 26	3.50	3.76	4 00

ATKINS', Concave Tooth, Cast Steel, Graduated from 14 to 19 Gauge, without Handles.

No. 10—Feet	5	5½	6	6½	7
Weight	5	6	7¼	8½	9¾ lbs.
Each	$4 00	4.40	4.80	5.20	5.60

DIAMOND.

ATKINS', Special Steel, Diamond, Graduated from 14 to 18 Gauge, without Handles.

No. 11—Feet	5	5½	6	6½
Weight	4½	5½	7¼	7¾ lbs.
Each	$2 80	3.08	3.36	3.64

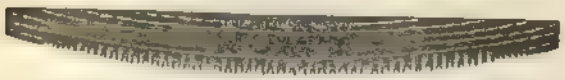
SAWS.

PERFORATED LANCE TOOTH CROSS-CUT SAWS.

DISSTON'S, Spring Steel, Extra Thin Back, Graduated from 14 to 18 Gauge, without Handles.

No. 16—Feet	5½	6	6½
Weight	5½	6¾	7½ lbs.
Each	$3.74	4.08	4.42

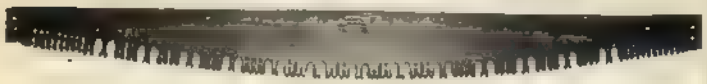
SIMONDS' CRESCENT GROUND CROSS-CUT SAWS.



SIMONDS' Cast Steel, Polished, 14 to 19 Gauge, without Handles.

No. 17—Feet	4½	5	5½	6	6½	7
Weight	4½	5	5½	6½	8¼	10 lbs
Each	$2.00	3.50	4.10	4.80	5.50	6.30

SIMONDS' CRESCENT GROUND PERFORATED LANCE TOOTH CROSS-CUT SAWS.



Cast Steel, Polished, 14 to 19 Gauge, without Handles.

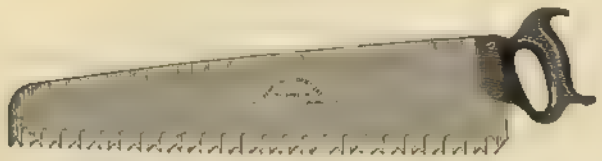
No. 22—Feet	5	5½	6	6½
Weight	5	5½	6½	8¼ lbs.
Each	$3 50	4.10	4.80	5.50

NEW CANADIAN RAZOR STEEL RACER CROSS-CUT SAWS.

Elliptic Ground, Secret Temper, Extra Thin Back, Graduated from 12 to 17 Gauge, without Handles.

No. 18—Feet	6	6½
Weight	6⅞	8¼ lbs.
Each	$6.72	7.28

WAGON ICE SAWS.

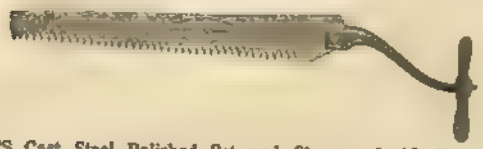


DISSTON'S, Cast Steel, Polished, Japanned Iron Handle.

Inches	26	28	30
Wt per doz	42	47	55 lbs
Per dozen	$20 00	21 00	22.00

ONE-THIRD DOZEN IN A BUNDLE.

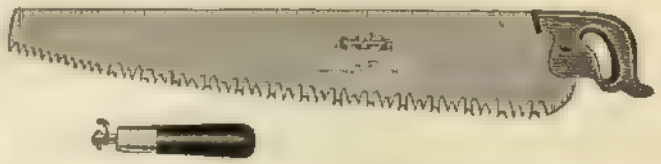
POND ICE SAWS.



DISSTON'S, Cast Steel, Polished, Set and Sharpened, 10 Gauge, Tapered from 7 to 5 Inches, with Tiller Handle.

No. 40—Feet	4	4½	5
Weight	10	12	13 lbs.
Each	$4.85	5.30	5.75

CHAMPION TOOTH ONE-MAN SAWS.



"OUR VERY BEST".

Spring Steel, Patent Ground and Tempered, Polished, Extra Wide Blade, Nickel Plated Screws, with Supplementary Handle.

CVB—Feet	2½	3	3½	4	4½	5
Weight	2½	3⅛	4¾	5	6¾	7¼ lbs.
Each	$2 65	2.65	3.10	3 50	4 00	4.45

ONE-QUARTER DOZEN IN A BUNDLE.

Cast Steel, Polished, with Supplementary Handle.

Feet	2½	3	3½	4	4½	5
Weight	3	3¾	4	5¼	6	6½ lbs
Ajax Champion Tooth each	$2 25	2 25	2.60	3.00	3 35	3.70
Disston's Champion Tooth [a]	2 25	2.25	2.60	3.00	3.35	3.70

ONE-QUARTER DOZEN IN A BUNDLE.

GREAT AMERICAN ONE-MAN SAWS.

DISSTON'S, Cast Steel, Polished, with Supplementary Handle.

No. 25—Feet	3	3½	4	4½	5
Weight	3	4¼	5¼	6	7½ lbs.
Each	$2.55	2.85	3.25	3.65	4.10

ONE-QUARTER DOZEN IN A BUNDLE.

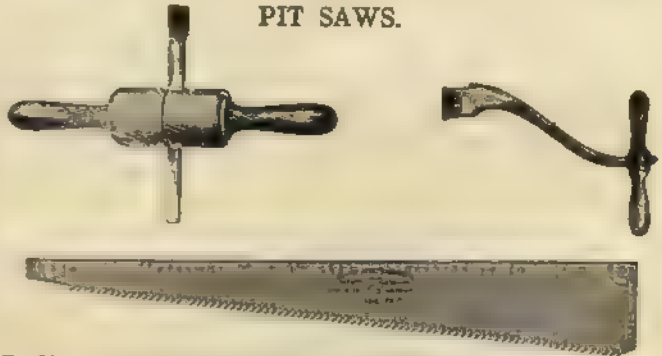
LANCE TOOTH ONE-MAN SAWS.

DISSTON'S, Spring Steel, Polished, with Supplementary Handle.

No. 27—Feet	3½	4	4½
Weight	4¼	5½	6¼ lbs
Each	$3 10	3 50	4 00

ONE-QUARTER DOZEN IN A BUNDLE.

PIT SAWS.



No. 30—6 ft., Disston's cast steel, polished, with tiller handle and box ..... each $7 90

No. 30—7 ft., Disston's, cast steel, polished, with tiller handle and box ..... each 8.90

AUTOMOBILE OIL AND GAS LAMPS.

TAIL OIL.

The best tail lamp ever offered to the public for the money.

The patent locking device prevents oil fat from dripping out.

Polished Brass.

No. 1—4 in. face, 8½ in. high, *without* bail.....each $2 50
No. 2—3 in. face, 9¾ in. high, *without* bail.....each 3 00
No. 3—3 in face 12½ in. high *with* bail.....each 3 50

Has a standard 2 in ruby semaphore rear lens and is suitable for all types of cars.

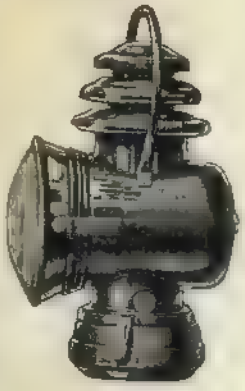
The "Dainty" Tail Lamp gives a light of 10 candle power, and will not blow out under the most trying conditions.

No. 403—Dietz Dainty, Tail Lamp, oil, height 11½ in., polished brass, 3 in. ruby semaphore rear lens.....each $4 00

SIDE OIL.

The Dietz "Dainty" Motor Car Lamp in appearance well befits its name, "Dainty." It is the ideal runabout lamp and gives a light of 13 candle power.

No. 402—Dietz Dainty, oil, height 11¾ in., polished brass..each $3.75

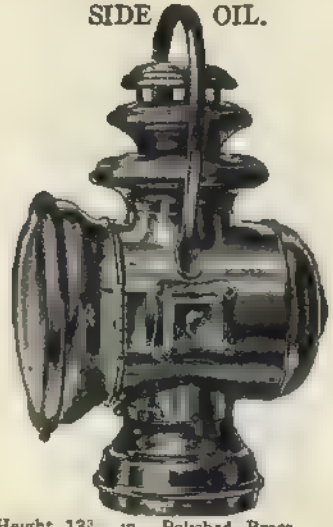


The frames of these lamps are very strong. The glass is heavy bevel plate, silver lined. The oil fount is held by a specially constructed fastener.

Polished Brass, Plate Glass Lights.

No. 11—Height 12 in., glass 4×4½ in., each.....$ 4.00
No. 22—Height 13 in., glass 5×5 in., each.....5.00

SIDE OIL.

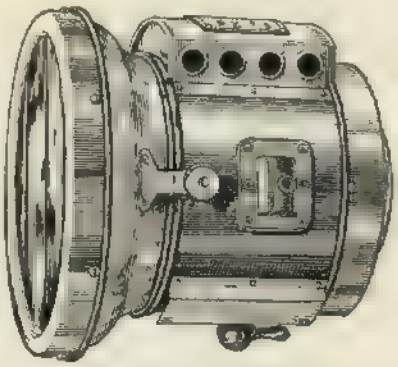


Height 13¾ in., Polished Brass.

No. 400—Dietz Royal, oil.....each $9.00
No. 401—Dietz Royal Junior, oil..." 7.00

The No. 400 gives a light of 65 candle power; the No. 401 45 candle power. Both Nos. contain a highly polished silvered reflector.

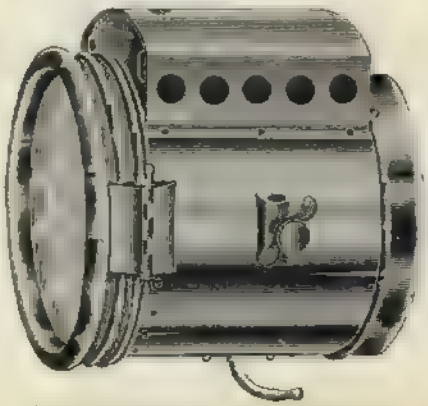
SIDE GAS.



20th Century, Flare Front, Polished Brass, Mangin Mirror Lens, Sectional Front Lens.

No. 106—6 in. diam. of body....each $10.00
No. 107—7 in. diam. of body...." 12.00
No. 108—S in diam. of body...." 1[illegible] 00

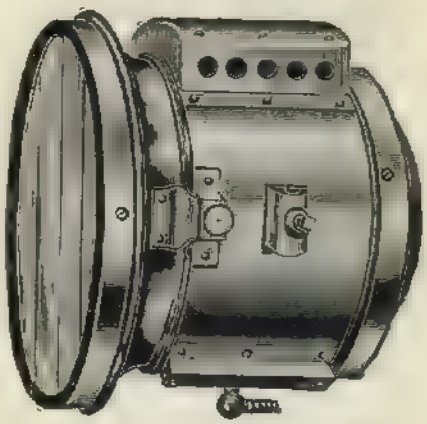
The brass is of heavy gauge, and will meet all requirements for a high grade lamp.



Columbia, Polished Brass, Adjustable Burner Mirror Lens.

No. 516—6 in lens, w't 5 lbs.....each $14 00
No. 517—7 in lens, w't 7 lbs....." 16 00
No. 518—8 in. lens, w't 9 lbs....." 22.00

SIDE GAS.



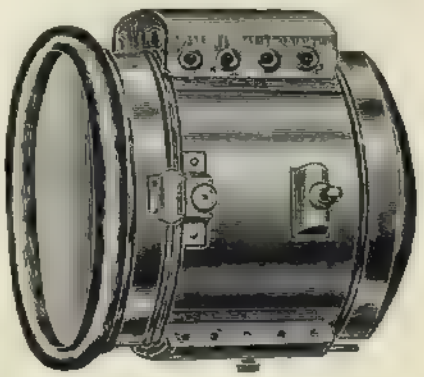
Flare Front, Crescent Lens Mirror, Adjustable Burner, Heavy Gauge Brass, Highly Polished.

No. 06—Height 7½ in., depth 8 in., front 7½ in.....each $10.50
No. 07—Height 8½ in., depth 8½ in., front 8½ in.....each 11.50
No. 08—Height 9¾ in., depth 9½ in., front 9½ in.....each 14.00
No. 09—Height 10½ in., depth 9½ in., front 10½ in.....each 18.00

Popular acetylene gas head light equipped with B. and L. mangin mirror; reflector and sectional front lens projecting a very powerful light. This lamp is made with adjustable burner, which enables one to focus the light to any desired point. Made of heavy gauge brass and highly polished.

No. 666—Height 7½ in., depth 8 in., front 7½ in.....each $5 00
No. 757—Height 8½ in., depth 8½ in., front 8½ in.....each 6 00

The above lamps are the same in size and appearance as Nos. 06 and 07 respectively, except that they have plain lenses and French glass mirrors. Solid lenses not sectional



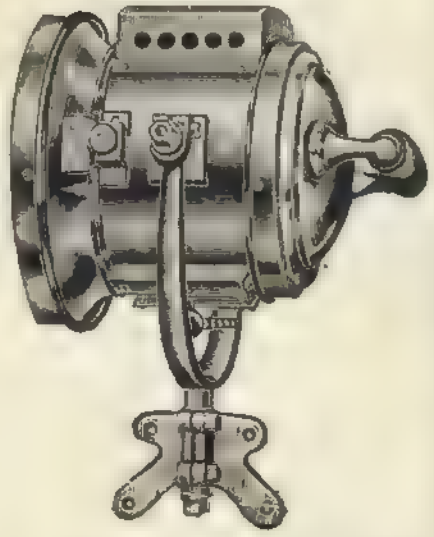
Barrel, Rolled Front, B. & L. Mangin Mirror Reflector, Highly Polished Brass.

No. 55—Height 9½ in., depth 7¼ in., front 6 in.....each $ 9.00
No. 56—Height 10½ in., depth 7½ in., front 7 in.....each 10.25
No. 57—Height 11½ in., depth 8¾ in., front 8 in.....each 12.00
No. 58—Height 12½ in., depth 9½ in., front 9 in.....each 13 50

The most popular searchlight type of acetylene gas headlight made. Equipped with B. and L. mangin mirror reflector, which projects a very powerful light.

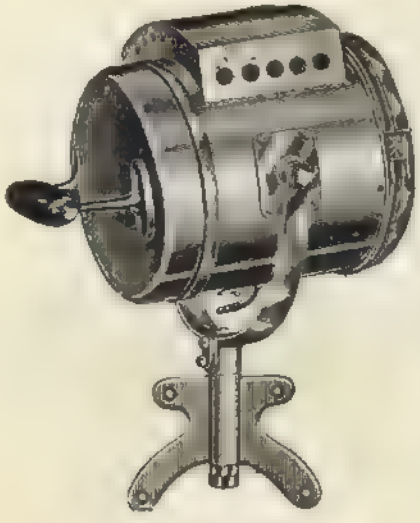
SEARCHLIGHTS AND GENERATORS.

SEARCHLIGHTS.



Flare Front, Crescent Lens Mirror, Swinging Swivel Brackets, Polished Brass.

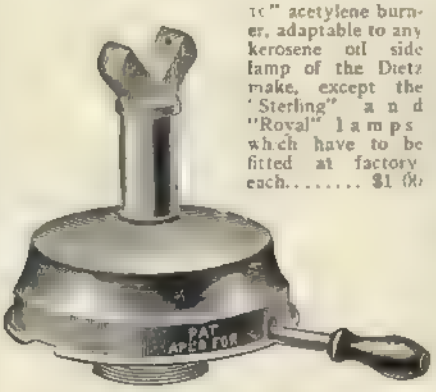
No. 06S—Height 14 in., depth 10¼ in., front 7½ in. ..... each $10.50
No. 07S—Height 14½ in., depth 10¾ in., front 8½ in. ..... each 12.50
No. 08S—Height 19 in., depth 11¾ in., front 9½ in. ..... each 17.50
No. 09S—Height 20½ in., depth 11¾ in., front 10½ in ..... each 24 00



Polished Brass, Adjustable Burner.

No. 506—Columbia, 6 in. mirror lens, w't 8½ lbs. ..... each $15.00
No. 507—Columbia, 7 in. mirror lens, w't 10½ lbs. ..... each 18 50
No. 508—Columbia, 8 in. mirror lens, w't 13 lbs. ..... each 22 50

ACETYLENE LAMP BURNERS.

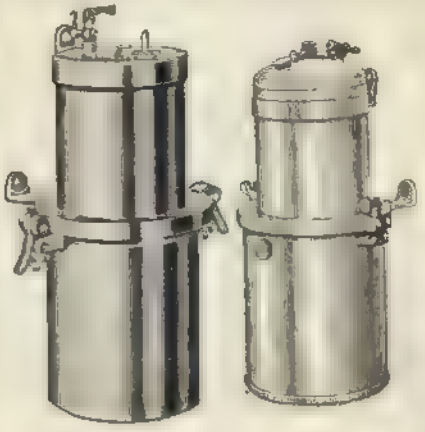


No. 10—Dietz "Press-to" acetylene burner, adaptable to any kerosene oil side lamp of the Dietz make, except the "Sterling" and "Royal" lamps which have to be fitted at factory each..... $1 00

BRASS AND RUBBER GAS TUBING.

¼ in. Flexible Brass Tubing per foot $0 12
Red Rubber Gas Tubing, A grade, " 10
Red Rubber Gas Tubing, B grade, " 08
Made of especially prepared stock.

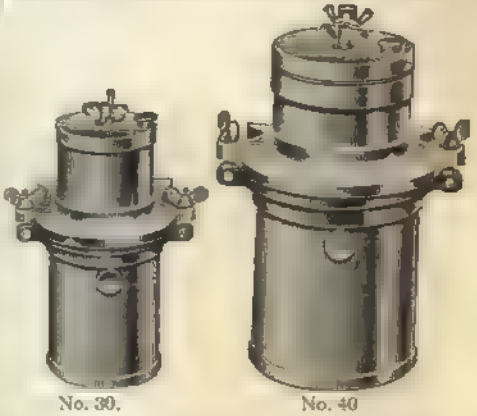
ACETYLENE GAS GENERATORS.



No. 5. No 19.

No. 5—Columbia, polished brass 15 in high, 8 in. in diam., lower bracket holes, 5 in. center to center, with upper adjustable bracket, 2½ to 5 in. from lower, carbide capacity 3½ lbs., for two lamps..... each $15 00
No. 19—20th Century, polished brass 12 in. high, carbide holder 5 in. in diam., capacity 1½ lbs..... each 10 00

ACETYLENE GAS GENERATORS.

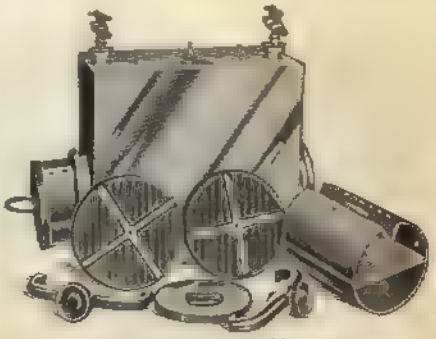


No. 30. No. 40

1909 Crescent, Gas, Extra Heavy Gauge Brass, Automatic.

No. 30—Capacity 1¼ lbs. carbide, height 11 in., width 7 in. ..... each $6 80
No. 50—Capacity 1½ lbs. carbide, height 12 in., width 5½ in. ..... each 6.50
No. 40—Capacity 2¾ lbs. carbide, height 12 in., width 8½ in ..... each 8.40
No. 60—Capacity 3½ lbs. carbide, height 15 in., width 8 in ..... each 7.50
Made of extra heavy gauge brass and are the very latest type of modern generator. Easy and simple to operate, automatic in action; by one turn of the valve the water and gas may be turned on or off instantaneously. Has water jacket surrounding the carbide chamber, keeping gas constantly cool and thereby producing a white flame.

No. 1—Columbia, operates one burner, capacity 20 oz. carbide, diameter 4 in., height 10 in., w't 3½ lbs. ..... each $ 9.00



No. 3—Columbia, two carbide cups, two separate water valves, capacity 56 oz. carbide, height 11 in., length 12½ in., w't 14 lbs. ..... each $15.00

POLICE GOODS.

HAND CUFFS.

No. 30—Tower's, polished, w't 18 oz., - - per pair $4.00
No. 30S—Tower's, polished, with stop, w't 18 oz., " 4.00
No. 40—Tower's, nickel plated, w't 19 oz., - " 4.75
No. 40S—Tower's, nickel plated, with stop, w't 19 oz., " 4.75

No. 41.

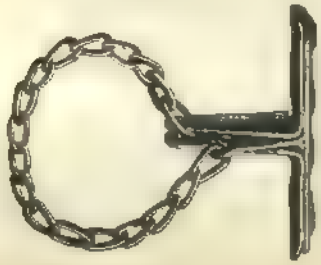
No. 27.

No. 41—Tower's, detective, self locking, adjustable, polished w't 12 oz., - - - - - - per pair $4.00
No. 45—Nickel plated, otherwise same as No. 41, " 4.75
No. 27—New pattern, detective, polished, swivel connection w't 14 oz., - - - - - - per pair 4.00
No. 25—Nickel plated, otherwise same as No. 27, " 4.75

THUMB CUFFS.

No. 20—Tower's, nickel plated, w't 3 oz., - each $4.50
Very convenient, light and handy.

TWISTERS.



No. 24—Tower's, nickel plated, w't 3 oz. handles interlock, per dozen, - - - - - - - - $12.00

NIPPERS.

No. 20—Tower's, nickel plated, w't 4½ oz., - per dozen $12.00

No. 21—Thomas' automatic, self-closing and self-locking, w't 7 oz., - - - - - - - - each $2.50

LEG IRONS.

No. 53—Bean's, polished, patent locking device, w't 27 oz., per pair, - - - - - - - - $6.00
No. 63—Bean's, nickel plated, patent locking device, w't 27 oz., - - - - - - - - per pair 7.00

No. 50—Tower's, polished, w't 3 lbs., - - per pair $6.00
No. 60—Tower's, nickel plated, w't 3 lbs., - " 7.00
Extra Keys, for any of the above leg irons, - each .35

POLICE GOODS.

CLUBS OR BATONS.

No. 18 —18 in., rosewood, w't 10 oz., - - each $1 25
No. 22 —22 in., rosewood, w't 12 oz., " 1.65
No. 22G—22 in , hickory, painted, imitation rosewood, " 1.00

No. 10—10 in., BEAN'S flexible, w't 7 oz., - - each $1.75
No. 12—12 in., BEAN'S flexible, w't 12 oz., - - " 2.00
No. 14—14 in., BEAN'S flexible, w't 16 oz., - - " 2.25

These clubs are made of sole leather, and brought together under a heavy pressure over steel wires cemented and riveted and covered with the same material forming a perfect surface without break or seam and are slightly elastic. They are the most effective clubs in use.

HELMETS.

No. 10—Privates', - - - - - - each $4 50

CAPS.

Private's or Patrolman's Cap.

Officer's Cap

No. 20—Privates', with numbers, - - - each $3.00
No. 30—Officers', with title, - - - - " 4.00

BUTTONS.

"P," Coat, gilt, - - - - - - per gross $15.00
"P," Vest, gilt, - - - - - - " 15.00
"CP," Coat, gilt, - - - - - - " 15.00
"CP," Vest, gilt, - - - - - - " 15.00

STARS.

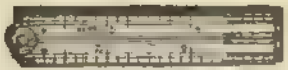
No. 20—Six point, 3¾ in., with word "Police" enameled each, - - - - - - - - - $1.75

No. 30—Five point officers', 2¾ in., German silver, finely nickel plated, engraved "City Marshal," or "Chief of Police," as desired, - - - - - each $2.00

No. 15—Six ball point officers', 2¾ in., German silver, finely plated and engraved "City Marshal," "Sheriff," "Constable," "Detective," etc., as may be desired, - each $3 00

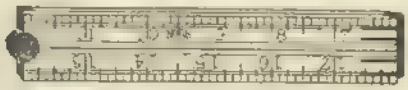
All are provided with strong safety pins. Special designs of stars or badges can be furnished on short notice.

BOXWOOD RULES.

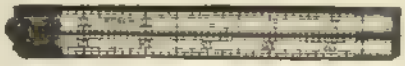


No. 69—1 ft., round joint, middle plates, marked in 8ths and 16ths in., ½ in. wide, w't per doz. ½ lb. ..... per dozen $1 75
ONE DOZEN IN A BOX.

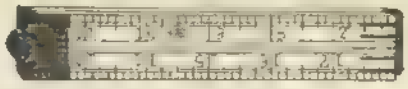
No. 65—1 ft., square joint, middle plates, marked in 8ths and 16ths in., ⅝ in. wide, w't per doz. ½ lb. ..... per dozen $2 00
HALF DOZEN IN A BOX.



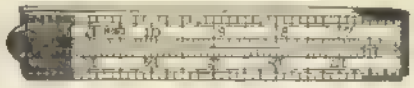
No. 68—2 ft., round joint, middle plates, marked in 8ths and 16ths in., 1 in. wide, w't per doz. 1¼ lbs. ..... per dozen $2.50
No. 68C—With centimeters, otherwise same as No. 68 ..... per dozen 3.00
ONE DOZEN IN A BOX.



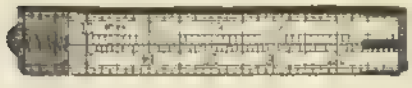
No. 62½—2 ft., square joint, full bound, marked in 8ths, 10ths, 12ths and 16ths in., ⅝ in. wide, w't per doz. 2 lbs., per dozen. $8 00
HALF DOZEN IN A BOX.



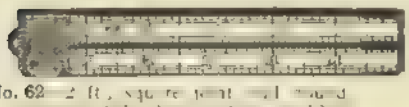
No. 61—2 ft., square joint, middle plates, marked in 8ths and 16ths in., 1 in. wide, w't per doz. 1½ lbs. . . per dozen $3 00
HALF DOZEN IN A BOX.



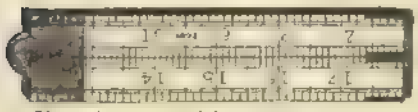
No. 63—2 ft., square joint, edge plates, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales 1 in. wide, w't per doz. 1½ lbs. ..... per dozen $4 00
HALF DOZEN IN A BOX.



No. 64—2 ft., square joint, half bound, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 2 lbs. ..... per dozen $6 50
HALF DOZEN IN A BOX.



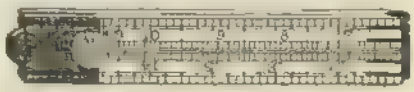
No. 62—2 ft., square joint, half bound, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 2¼ lbs. ..... per dozen $8.00
HALF DOZEN IN A BOX.



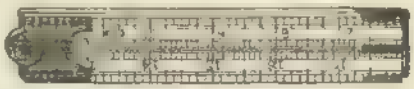
No. 72—2 ft., square joint, edge plates, marked in 8ths, 10ths and 16ths in., drafting scales, 1⅜ in. wide, w't per doz. 2 lbs. ..... per dozen $5 00
HALF DOZEN IN A BOX.

No. 72—2 ft., square joint, bound, marked in 8ths, 10ths and 16ths in., drafting scales, 1⅜ in. wide, w't per doz. 3 lbs. ..... per dozen $9 00
HALF DOZEN IN A BOX.

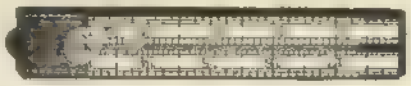
No. 07—2 ft., blindmen's, square joint, edge plates, marked in 8ths and 16ths in., 1⅜ in. wide, w't per doz. 2 lbs., per dozen $11 00
This rule was made to meet the large demand for a rule which could be easily seen in a dim light by workmen with poor eyes. It is in fact a rule which will be appreciated by any mechanic.



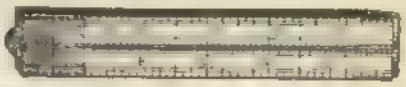
No. 51—2 ft., arch joint, middle plates, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 1½ lbs. ..... per dozen $3.50
HALF DOZEN IN A BOX.



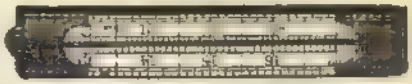
No. 53—2 ft., arch joint, edge plates, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 1½ lbs. ..... per dozen $4 50
HALF DOZEN IN A BOX.



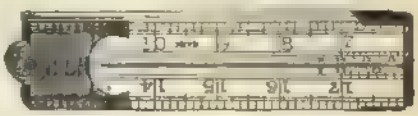
No. 52—2 ft., arch joint, half bound, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 2 lbs. ..... per dozen $7.25
HALF DOZEN IN A BOX.



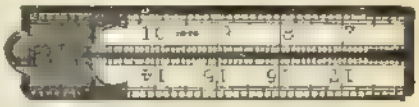
No. 54—2 ft., arch joint, bound, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 2½ lbs. ..... per dozen $8 75
HALF DOZEN IN A BOX.



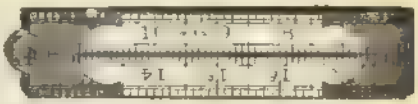
No. 60—2 ft., double arch joint bound, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz. 2½ lbs. ..... per dozen $10.75
HALF DOZEN IN A BOX.



No. 75—2 ft., arch joint, edge plates, marked in 8ths, 10ths and 16ths in., drafting scales, 1⅜ in. wide, w't per doz. 2¼ lbs. ..... per dozen $6.00
HALF DOZEN IN A BOX.



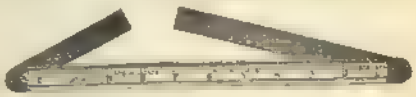
No 76—2 ft., arch joint bound, marked in 8ths, 10ths and 16ths in., drafting scales, 1⅜ in. wide, w't per doz. 3 lbs., per dozen. $10 00
HALF DOZEN IN A BOX.



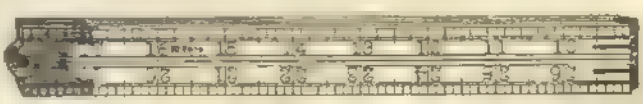
No. 78½—2 ft., double arch joint bound, marked in 8ths, 10ths and 16ths in., drafting scales, 1⅜ in. wide, w't per doz. 3 lbs. ..... per dozen $12.00
HALF DOZEN IN A BOX.

No. 53½—2 ft., arch joint, edge plates, marked in 8ths, 10ths, 12ths and 16ths in., with inside beveled edges and architect's drafting scales, 1 in. wide w't per doz. 1½ lbs. ..... per dozen $8 00
HALF DOZEN IN A BOX.

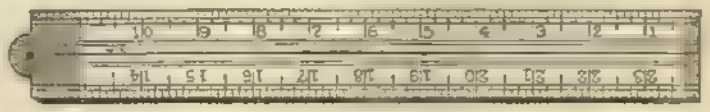
SHIP CARPENTERS' BEVELS.



No. 42—1 ft., boxwood, 2 brass tongues brass tipped, marked in 8ths and 16ths in., width ⅜ in., w't per doz., 1½ lbs., per dozen. $4 00
ONE DOZEN IN A BOX.



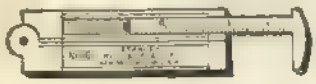
No. 66½—3 ft., arch joint, middle plate, marked in 8ths and 16ths in., 1 in. wide, w't per doz. 4 lbs. ..... per dozen $ 6 00
No. 66½—Full bevel, 1 in. wide, w't per doz. 3½ lbs., otherwise same as No. 66½. 15 00
HALF DOZEN IN A BOX.



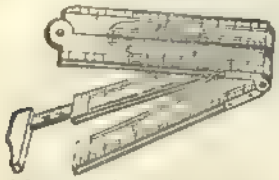
Two Fold.
No. 18—2 ft., square joint, marked in 8ths and 10ths in., 1⅛ in. wide, w't per doz. 2 lbs., per dozen $4 00
HALF DOZEN IN A BOX.

RULES.

BOXWOOD CALIPER.

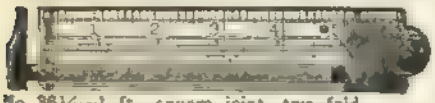


No. 36—6 in., square joint, two fold, marked in 8ths, 10ths, 12ths and 16ths in., ⅞ in. wide, w't per doz. ¾ lb., per dozen $4 50



No. 32—1 ft., arch joint., edge plates, four fold marked in 8ths, 10th, 12ths and 16ths in., 1 in. wide, w't per doz. 1¼ lb., ... per dozen $7 00

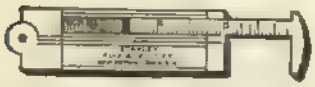
No. 32½—1 ft., arch joint, full bound four fold, marked in 8ths 10ths, 12ths and 16ths in., 1 in. wide, w't per doz. 1¾ lbs ... per dozen $10 00



No. 36½—1 ft., square joint, two fold, marked in 8ths, 10ths 12ths and 16ths in., 1⅜ in. wide, w't per doz. 1¾ lbs. per dozen..... $6 50

HALF DOZEN IN A BOX.

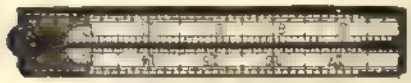
IVORY.



No. 38—6 in., square joint German silver bound, two fold, marked in 8ths, 10ths, 12ths and 16ths in., ⅞ in. wide, w't per doz ¾ lb ... per dozen $15.00

No. 40½—6 in. square joint, German silver bound two fold, marked in 8ths and 16ths in., ⅞ in. wide, w't per doz., ¾ lb ... per dozen 24 00

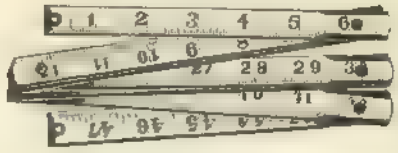
No. 40—1 ft., square joint, German silver bound, four fold, marked in 8ths and 16ths in., ⅝ in. wide, w't per doz. 1¾ lbs.. .....per dozen $44.00

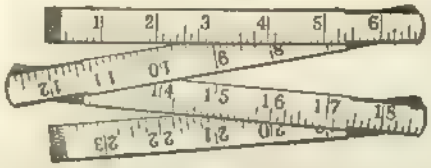


No. 87—2 ft., arch joint, German silver bound, marked in 8ths, 10ths, 12ths and 16ths in., drafting scales, 1 in. wide, w't per doz., 3 lbs.....per dozen $80.00

HALF DOZEN IN A BOX.

ZIGZAG.





Stanley's, Boxwood Stained, Nickel Plated Steel Joints and Tips.

Nos.	02	03	04
Length	2	3	4 ft
W't per doz.	1	1½	2 lbs
Per dozen	$2 00	3 00	4 00
Nos.	**05**	**06**	**08**
Length	5	6	8 ft.
W't per doz.	2½	3	4 lbs.
Per dozen	$5 00	6 00	8.00

Stanley's, White Enameled, Brass Joints and Tips.

Nos.	103	104	105
Length	3	4	5 ft
W't per doz	1½	2	2½ lbs
Per dozen	$3 75	5 00	6 25
Nos.		**106**	**108**
Length		6	8 ft
W't per doz.		3½	4½ lbs
Per dozen		$7 50	10 00

These rules are made of flexible hardwood each joint containing a stiff spring, which holds the rule rigid when open.

EXTENSION.

No. 604—Stanley's, 2 to 4 ft., hickory, brass extension slides and tips, brass set screw, ⅞ in. wide, w't per doz. 9 lbs., per dozen ..... $ 8 00

No. 610—5 to 10 ft. w't per doz. 15 lbs., otherwise same as No. 604...per dozen 12 00

ZIGZAG EXTENSION.

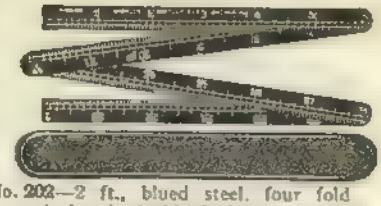
No. 204—Stanley's, 4 ft., boxwood stained, brass joints, slides and tips, marked in 8ths and 16ths in., ⅝ in. wide, w't per doz. 2½ lbs.....per dozen $7 00

No. 206—Stanley's, 6 ft., boxwood stained, brass joints, slides and tips, marked in 8ths and 16ths in., ⅝ in. wide, w't per doz. 3⅜ lbs ..... per dozen 9 00

These rules have all the advantages of the regular Zigzag rules, and in addition have at one end an extension slide, by the use of which exact inside measurements may be readily obtained. When using the slide, take the inches at point "B" and add to these the exact measurement shown on the slide at point "A," which will give the distance measured.

HALF DOZEN IN A BOX.

FOLDING POCKET.



No. 202—2 ft., blued steel, four fold marked on both sides in 8ths and 16ths in., ¾ in wide, leather case, w't per doz. 1 lb..... per dozen $7 00

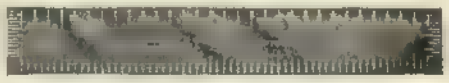
ONE DOZEN IN A BOX.

STEEL MACHINISTS.'

Flexible 10th Graduation, 32nds and 64ths, on One Side Only.

No. 10—Inches,	3	4	6
W't per doz.	2	3	4 oz.
Per dozen	$4 20	5.40	7 80
No. 10—Inches		**9**	**12**
W't per doz.		6	8 oz
Per dozen		$12 00	15 00

HALF DOZEN IN A BOX



Tempered, End Graduations, 4th Graduations, One Side 8ths and 16ths, Other Side 32nds and 64ths.

No. 4—Inches	1	2	3	4
W't per doz.	2	4	5	8oz
Per dozen	$1 80	3 00	4 20	5.40
No. 4—Inches		**6**	**9**	**12**
W't per doz.		14	24	36 oz.
Per dozen		$7 80	12 00	15 00

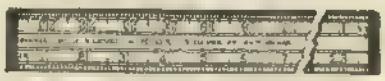
HALF DOZEN IN A BOX.

BLACKSMITHS' BRASS.

No. 17—2 ft., Stanley's, polished spring brass, two fold, marked in 8ths and 16ths in., ⅝ in. wide, w't per doz. 2½ lbs ..... per dozen $5 00

HALF DOZEN IN A BOX.

PATTERN MAKERS' SHRINKAGE.



Stanley's, Boxwood, Brass Tips, 24x1½ Inch

No. 30½—Shrinkage, per ft.	1/8	1/16	1/32 in
W't per doz.	2¼	2¼	2¼ lbs.
Per dozen	$18 00	18 00	18 00
No. 30½—Shrinkage, per ft.	**1/16**	**1/32**	**1/64 in**
W't per doz.	2¼	2¼	2¼ lbs.
Per dozen	$18 00	18 00	18 00
No. 30½—Shrinkage per ft.	**1/8**	**1/16**	**1/32 in**
W't per doz.	2¼	2¼	2¼ lbs.
Per dozen	$18 00	18 00	18 00

HALF DOZEN IN A BOX.

CUCKOO CLOCKS.

No. 32.

No. 33.

No. 107.

No. 32—Cuckoo, hand carved, height 20 in., width 14 in., dial 5½ in., half hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, ... each $13.50

No. 33—Cuckoo, hand carved, height 19 in., width 14 in., dial 5 in., half hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, ... each 13 90

No. 107—Cuckoo, hand carved, height 19 in., width 14 in., dial 5¼ in., half hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood . . . . . each 14 50

No. 24.

No. 42.

No. 56.

No. 24—Cuckoo, hand carved, height 21 in., width 15 in., dial 5¾ in., half-hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, ... each $16 50

No. 42—Cuckoo, hand carved, height 20 in., width 13½ in., dial 5¼ in., half-hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, ... each 17 80

No. 56—Cuckoo, hand carved, height 23 in., width 15 in., dial 5¼ in., half hour strike and call, solid walnut or oak, rabbit, bird and deer's head decorated in natural colors, imitation glass eyes, rabbit's and deer's heads, large size G. K. movement, front of case made of three layers of wood, . . . each 22.30

CUCKOO, QUAIL AND TRUMPETER CLOCKS.

No. 7.

No. 46

No. 10.

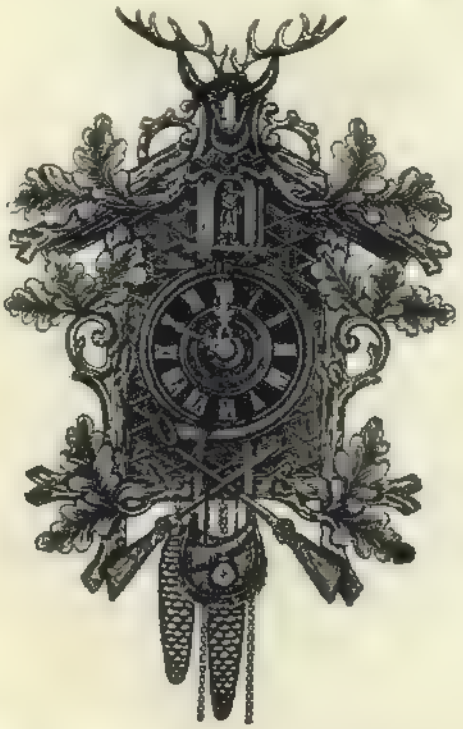
No. 7—Quail and cuckoo, hand carved, height 25 in., width 17 in., dial 6⅝ in., quarter-hour strike and call, solid walnut or oak with [illegible] and ash, ebo[illegible] and mahogany ornaments, large size G. K. movement, front of case made of three layers of wood, each $[illegible]

No. 46—Quail and cuckoo, hand carved, height 21½ in., width 16⅜ in., dial 6⅝ in., quarter-hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, each 27 00

No. 10—Quail and cuckoo, hand carved, height 26 in., width 17 in., dial 6½ in., quarter-hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, each 42 00

No. 11.

No. 31.



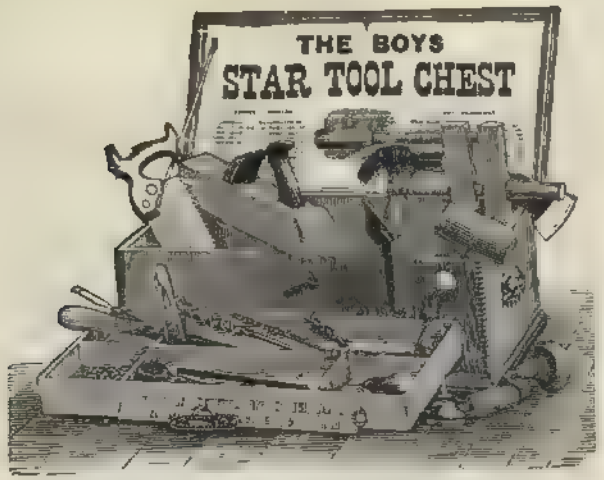
No. 12.

No. 11—Quail and cuckoo, hand carved, height 26 in., width 18 in., dial 6⅝ in., quarter-hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, each $33 00

No. 31—Quail and cuckoo, hand carved, height 26 in., width 18 in., dial 6⅝ in., quarter-hour strike and call, solid walnut or oak, large size G. K. movement, front of case made of three layers of wood, each 6[illegible] 50

No. 12—Trumpeter, hand carved, height 28 in., width 18 in., dial 6¾ in., half-hour bugle call of the trumpeter, solid walnut or oak front of case made of three layers of wood, each 30 70

TOOL CHESTS.



No. 45B—Chestnut box size 9½×4¼×2½ in., hinged cover, locked corners, well finished with brown mouldings containing about 8 tools, w't per doz 17½ lbs ..... per dozen $ 1 00

No. 60B—Chestnut box with till, size 11×5×3⅝ in., hinged cover, with heavy brown mouldings, containing about 11 tools, w't per doz. 40 lbs ..... per dozen 1 75

No. 90B—Chestnut box with tray, size 12¾×6×4¼ in., locked corners, with heavy brown mouldings, containing about 13 tools, w't per doz 62½ lbs ..... per dozen 12 75

No. 600B—Chestnut box with tray, size 14⅛×6¾×4¾ in., with heavy brown mouldings, containing about 16 tools, w't per doz 90 lbs ..... per dozen 15 00

No. 700B—Chestnut box with tray, size 15¼×7¼×5⅜ in., with heavy brown mouldings, containing about 16 tools, w't per doz. 105 lbs ..... per dozen 18.75

No. 725B—Size 16¼×7¾×6 in., polished hammer, large level, brace and bit, w't per doz. 110 lbs., otherwise same as No. 700B..... per dozen 21 75

No. 750B—Chestnut box with tray, size 17×8×6 in., with heavy brown mouldings and bronze handles, containing about 24 tools, w't per doz. 125 lbs.. ..... per dozen 27 00

No. 800B—Chestnut box with tray, size 18×8½×6½ in., with heavy brown mouldings and bronze handles containing about 28 tools w t per doz 140 lbs ..... per dozen 36 00

No. 220—Chestnut box with tray, size 18×8½×6 in., with dovetailed corners, heavy black walnut mouldings, polished and finished with best grade of varnish, bronze handles, fitted with good locks and keys containing about 20 tools w t 14 lbs per dozen..... 81 00

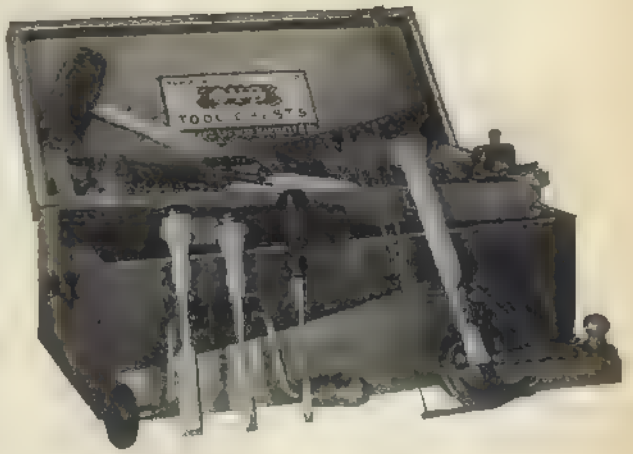
NO. 45B, SIX DOZEN; NO. 60B, THREE DOZEN, NO. 90B, TWO DOZEN; BALANCE, ONE DOZEN IN A CRATE

All sizes given are inside measure

No. 500—H. S. B. & Co's men's work box, containing 17 different tools as enumerated above, made by the best makers and taken direct from stock. The assortment includes just such tools as every man needs about the house, dovetailed box, length 21 in. 3 4 in., width 8¼ in., height 4⅛ in., w't 19 lbs.....each $8 00

Contents.

1 No. 102 Level
1 No. 41 Tool Handle
1 Parker Button Pliers.
1 No. 15-in. Screw Driver.
1 No. 61 Rule
1 8-in. Agricultural Wrench.
1 ¼-in. Cast Steel Auger Bit
1 ⅜-in. Cast Steel Auger Bit.
1 9/16-in. Cast Steel Auger Bit.
1 1-in. Cast Steel Auger Bit.
1 No. 35½-in. German Gimlet Bit
1 No. 2 Maricopa Half Hatchet.
1 No. 110 Rev-o-noc Block Plane.
1 8-in. Washita Oil Stone, 1 lb.
1 Calumet Bell-Face Nail Hammer.
1 No. 80, 22-in. Panel Saw.
1 10-in. Barker's Brace.



No. 200 OVB—Hardwood box with tray size 25½×11½×9 in., dovetailed box, nicely finished, fitted with lock and key and chest handles on ends, contains 25 high grade tools, w't 30 lbs., each $15 00

Contents.

1 No. 2 O. V. B. A. E. Nail Hammer
1 ½-in. O. V. B. Socket Butt Chisel
1 1-in. O. V. B. Socket Butt Chisel.
1 20-in. O. V. B. Panel Saw.
1 No. 100 Coping Saw.
1 6-in. O. V. B. Wing Divider
1 10-in. O. V. B. Steel Square.
1 O. V. B. Scratch Awl
1 No. 62 Marking Gauge.
1 No. R 24 Plane.
No. 22½ Mallet.
1 No. 102 Level.
1 No. 03 Zigzag Rule.
1 6-in. O. V. B. Flat Bastard File and handle
1 6-in. O. V. B. Flat Slim Taper and handle.
4 O. V. B. Auger Bits ¼, ⅜, ½ and ⅝ in.
1 O. V. B. Gimlet
1 8-in. O. V. B. Plain Brace
1 5-in. O. V. B. Screw Driver.
1 35½ O. V. B. Nail Set
1 322 Rev-o-noc Pliers.
1 O. V. B. Alligator Wrench
1 No. 31 Oiler
2 oz. of Glue
1 No. 111 Carpenter's Pencil

No. 300—Hardwood box with tray, size 25½×11½×9 in., dovetailed box, nicely finished, fitted with lock and key and chest handles on ends, contains 25 tools, w't 30 lbs.....each $12.00

Contents.

1 No. 2 Nail Hammer.
1 ½-in. Socket Butt Chisel.
1 1-in. Socket Butt Chisel.
1 20-in. "I Will" Panel Saw
1 No. 100 Coping Saw
1 No. 56 6-in. Dividers
1 No. 10 Steel Square
1 No. 61 Marking Gauge.
1 No. 100 Scratch Awl
1 No. 155 Plumb and Level.
1 No. R 23 Plane
1 No. 20 Mallet
1 6-in. American Flat Bastard File and Handle
1 6-in. American Slim Taper File and Handle.
1 No. 803 Zigzag Rule.
4 No. 62 Auger Bits.
1 No. 200 Gimlet.
1 8-in. Brace
1 5-in. Screw Driver.
1 Nail Set
1 No. 3120 Pliers.
No. 04 Alligator Wrench.
1 No. 0 Oiler
1 2 oz. Bottle of Glue
1 No. 111 Carpenter's Pencil

Nos. 200 and 300 contain tools well adapted for home use. They are also suited for boys desiring an assortment of high grade and serviceable tools.

TOOL CABINETS.

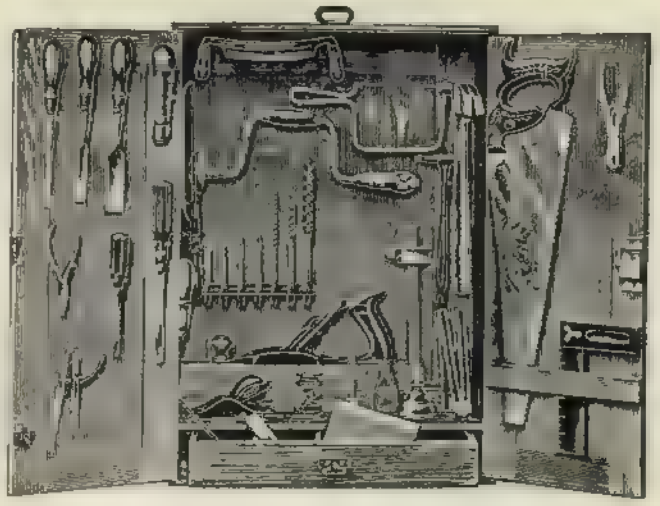
O V B TOOL CABINETS.

No. 25 O V B—Hardwood, nicely varnished, dovetailed, with two paneled doors, outside measurement 24×17×6 in., inside measurement 22¾×15¾×5½ in., inside drawer 13¼×3×2 in., brass hinges, lock with key and heavy brass bolt with 21 best grade tools, w't 45 lbs. ..... each $25 00

Contents.

No. 24 Rev-o-noc Plane.
18 in O. V. B. Panel Saw.
No. 2 O. V. B. Bell Face Nail Hammer.
No. 1 O. V. B. Shingling Hatchet.
8 in. O. V. B. Plain Brace.
1 each—½ and ½ in O. V. B. Auger Bits
No 30—4-32nds. O. V. B. Gimlet Bit
No. 213—1¼ in. Butt Chisel.
No. 70—6 in. Oil Stone.
No. 20—6 in. Try Square.
6 in. O. V. B. Screw Driver.
8 in. O. V. B Mill File, with handle.
5½ in. O. V. B. Slim Taper File, with handle.
No. 1 O. V. B. Tool Handle
No. 35½ Nail Set.
No. 322 Rev-o-noc Pher
No. 1 Cabinet Scraper.
No. 111 Carpenter's Pencil.
No. 61 Rule.
No. 62 Marking Gauge
No. 31 Copper Plated Oiler.
2 ounces LePage's Glue.

MENS' TOOL CABINETS.



No. 101—Chetnut, paneled and nicely finished, outside dimensions 26¾×19¾×8⅞ in., contains 35 first quality tools, as enumerated below, w't 55 lbs ..... each $30.00

ONE IN A CASE.

Contents.

1 18 in Saw.
1 Brace.
3 Gimlet Bits.
3 Auger Bits.
3 Chisels.
2 Screw Drivers'
1 Hack Saw.
1 Hexagon Level
1 Countersink.
1 Cabinet Scraper.
1 Steel Nail Hammer.
1 Tack Hammer.
1 Tool Holder, with 10 Tools
1 Drawing Knife.
2 Planes.
1 Rule.
1 Try Square.
1 Marking Gauge.
1 Knurled Nail Set.
1 Pair Wing Dividers.
1 Pair Gas Pliers.
1 Pair Flat Nose Pliers.
1 Pair Cutting Nippers
1 Saw File.
1 Oil Whetstone.
1 Oiler
1 Glue Pot
1 Coping Saw

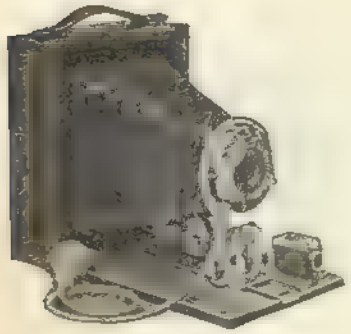
O V B TOOL CABINETS.

Contents.

No. 26 Rev-o-noc Jack Plane.
No. 9½ Rev-o-noc Block Plane.
22 in O V B Panel Saw.
12 in. O. V. B. Compass Saw
No. 1 Crown Hack Saw Frame
No 100 Coping Saw.
No. 2 O V B Bell Face Nail Hammer.
No. 1 O. V. B Riveting Hammer.
No. 1 O. V. B. Shingling Hatchet
No. B-10 Blued Steel Square.
No. 20—6 in. Try Square
No 25—8 in. Sliding T Bevel.
8 in. O. V. B. Drawing Knife.
No 33—8 in. O.V. B. Ratchet Brace.
¾, ½ ¾ and 1 in O V B Auger Bits
No 30—4 and 8-32nds O. V. B Gimlet Bits.
No 18 Countersink Bit
No. 1-½ in. O V. B. Reamer Bit
No. 7 Screw Driver Bit. O. V. B
¼, ½ and 1 in. O. V. B. Socket Firmer Beveled Chisels
No. 60—½ in. O. V. B. Socket Firmer Gouge.
No. 60—½ in. O. V. B Socket Firmer Gouge
8 in O. V B. Mill File, with handle
No. 2 Spoke Shave.
1 each—No. 108—⅛, 5/32, ¼, 7/32 and ⅜ in. Drill Bits.
No. 041 Yankee Hand Drill
5½ in. O. V. B. Slim Taper File, with handle.
10 in. O. V. B. Half Round Cabinet File, with handle.
No. 716 Mounted Oil Stone.
No. 2 O. V. B. Tool Handle.
3 in. O. V. B Screw Driver
6 in. O. V. B Screw Driver
8 in O. V. B. Wing Divider.
O. V. B Scratch Awl.
O V. B Brad Awl
No. 35½ O. V. B Nail Set.
No. 322 Combination Plier.
No. 5 Glass Cutter.
No. 1 Cabinet Scraper.
No. 33 Measuring Tape.
No. 781 Carpenter's Pencil.
No. 62 Marking Gauge.
No 00 Level
8 in. Agricultural Wrench.
No. 12 Mallet.
No. 2 Carriage Maker's Clamp
No 31 Oiler.
2 ounces LePage's Glue
No. 226 Flat Nose Plier
O. V. B. Tack Claw
1 dozen No. 1—0 in. O. V. B. Hack Saw Blades.
No. 61 Rule

No. 50 O. V. B.—Hardwood nicely varnished with two paneled doors brass hinges lock with key and heavy brass bolt outside measurement 31×22½×7¾ in., inside measurement 29¾×21×7¼ in., inside drawer 19½×5×2 in., with 60 best grade tools, w't 85 lbs..... each $50 00

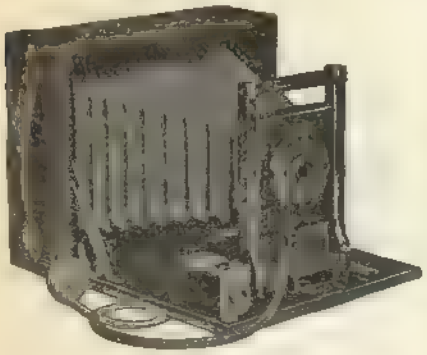
SENECA CAMERAS.



For Plates.

No. S29—Size picture 4×5 in., size 6⅛×5⅛×2 in., complete with one regular plate holder, w't 24 oz...each $11.20

The Pocket Seneca is made of selected cherry with ebonized finish and has but one side arm. It presents a very neat appearance and for the price asked there is none better made. It is designed especially for the beginner who desires a pocket instrument at a moderate price. It possesses a Uno shutter and rapid rectilinear Lens. The holder furnished is the regular Seneca and with each camera we include a book of instructions and also a manual giving full instructions how to take and develop pictures.



For Plates.

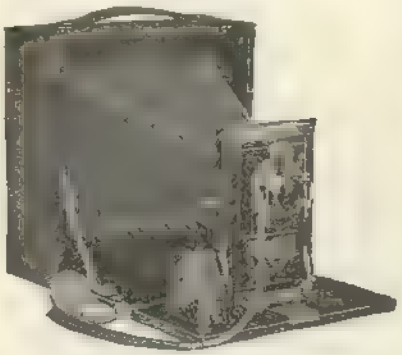
No. S2—Takes pictures 4×5 in., size 6×5¼×2⅜ in., ebony finished camera box, corners dovetailed and covered with seal grain leather, solid mahogany camera bed ebony finished, attached to camera with improved nickel plated piano hinge, brass metal parts, handsomely nickel plated, black Russia leather bellows lined with gossamer cloth, complete with one double adjustable plate holder and carrying case, w't 28 oz..... each $14.70

Designed to meet the requirements hitherto unprovided for, and embrace features that make them distinctly popular among those desiring a completely equipped instrument at an extremely low price. Is fitted with a high grade rapid rectilinear lens with Uno shutter, requiring only a pressure of the bulb for an exposure, or if desired the finger release may be used. A carrying case is supplied, with accommodations for the camera in one end and extra plate holders in the other.

For Plates.

No. SA3—Pocket size picture 3¼×5½ in., post card size, size camera 6⅞×4½×2⅜ in.; focal capacity, 9½ in.; rising and falling front, metallic, reinforced; removable spring back; ground glass panel for focusing; rack and pinion for fine focusing, with locking device, two tripod sockets; brilliant and reversible finder, metal bound, hooded; Seneca Uno shutter, with bulb and tube attachment; rapid rectilinear lens, special focus, 7 in.; genuine leather bellows; improved Seneca camera plate holder, each..... $18.70

The Pocket Seneca is adapted to the use of both dry plates and film packs. It may be used for profit as well as pleasure—a size that just nicely covers a postal card. It possesses a rack and pinion, made in a compact manner, and at a very reasonable price.

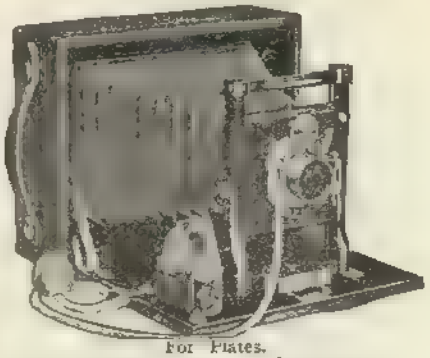


For Plates.

No. S6—Takes pictures 4×5 in., size 6×5¼×2⅜ in., ebony finished camera box, corners dovetailed and covered with seal grain leather, solid mahogany camera bed, ebony finished, attached to camera with improved nickel plated piano hinge, brass metal parts handsomely nickel plated, black Russia leather bellows lined with gossamer cloth, complete with one double plate holder and carrying case, w't 28 oz., each $21 35

Built upon very strong and rigid lines, possessing lightness and compactness. It is equipped with the celebrated Duo double valve shutter and the well-known rapid rectilinear lens. In using this improved shutter it enables the operator to use different speeds of exposure, ranging from one second to one one-hundredth part of a second. The equipment permits of a variety of work.

SEND FOR SPECIAL SENECA BOOKLET.



For Plates.

No. S7—For pictures 4×5 in., size 6×6×3 in., ebony finished camera box, corners dovetailed and covered with walrus grain leather, solid mahogany camera bed, ebony finished, attached to camera with improved nickel plated piano hinge, brass metal parts, handsomely nickel plated, black Russia leather bellows lined with gossamer cloth, complete with double adjustable plate holder and carrying case, w't 40 oz., each..... $29.35

No. S7—For pictures 5×7 in., size 8½×8½×3 in., w't 66 oz. each 38.70

Perfect in design and compact in form. This instrument has obtained a world wide reputation for an all around business camera. It possesses a swing back, rising and falling front, hooded reversible brilliant finder, and also a rack and pinion. It is fitted with the celebrated Duo double valve shutter and Seneca symmetrical lens. The increase in draw of this camera is manipulated by a fine focusing attachment, and it also possesses a reversible back. The special features are that it possesses a swing back and the symmetrical lens, which is a higher grade than the rapid rectilinear.

For Plates

No. S8—For pictures 4×5 in. size 6×6×3 in., ebony finished, camera box corners dovetailed and covered with walrus grain leather, solid mahogany camera bed, ebony finished, attached to camera with improved nickel plated piano hinge, brass metal parts handsomely nickel plated, black Russia leather bellows lined with gossamer cloth, complete with double adjustable plate holder and carrying case, w't 44 oz., each..... $33.35

No. S8—For pictures 5×7 in., size 8½×8½×3 in., w't 66 oz.....each 44.00

Embraces features of a more pretentious nature than are to be found in the other numbers of the Seneca series described. Its length of draw and equipment of shutter makes the camera capable of a very wide range in photographic work. It is fitted with a double valve automatic shutter, and the Seneca triple convertible lens. The rear combination of the lens may be used alone, which nearly doubles the size of the image.

CAMERAS.

BUSTER BROWN BOX.

For Films.

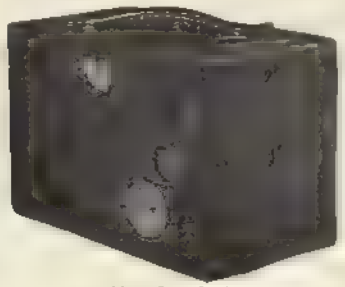
No. BB2—Exposure 2¼×3¼ size 5½×4½×3½ in., w't 11 oz... each $3 40
Carrying Case " 1 70

Designed with special reference to the wants of the ... of a good camera for little money. Fitted with a fine quality lens and shutter for both snapshot and time exposures.

ANSCO BOX.

For Films.

No. 1—For pictures 3¼×3¼ in., size 5½×4¾×4¾ in., w't 19 oz.....each $7.70
Carrying Case... " 2.60



Nos. 3 and 23.

For Films.

No. 2—For pictures 3¼×4¼ in size 6 ... ×5½×4¾ in., w't 30 oz each $11.10
Carrying Case " 2.60
No. 3—For pictures 4×5 in., size 8¼×6 ... ×5¼ in., w't 40 oz..... each 13.00
Carrying Case..... " 2 60
No. 23—For pictures 3¼ x 5½ in., size 6¾×5¼×7½ in., w't 41 oz.....each 11.80
Carrying Case ..... " 2.60

All Ansco box cameras are recommended for snapshot work. Always ready for action, for the single achromatic lens with which they are fitted is of the fixed focus style. The shutter with three diaphragms is arranged to give two degrees of speed as well as time exposures and are provided with socket for tripod screw.

Each camera is complete in itself and has no loose parts to become broken or lost.

They are provided with brilliant finders of the best quality and are covered with genuine seal leather; all parts are nickel plated.

Adapted to the use of the daylight-loading film-cartridge system.

BUSTER BROWN FOLDING.

For Films.

No. F1—Folding, makes 2¼×3¼ in. exposure, size 3½×6¾×1¾ in. w't 14 oz..... each $11 00
Carrying Case..... " 2.20

A very compact camera and fitted with a fine meniscus lens with diaphragm and with a shutter for time and instantaneous exposures. It is also provided with a brilliant finder for horizontal and vertical pictures, also socket for tripod

ANSCO FOLDING.

For Films.

Junior—Exposure 2½×4½ in. size 8¼ ×4¼×2 in., w't 21 oz ... ... each $18.40
Carrying Case..... " 2.20

This is a very handsome compact camera ... -locking device, for bellows extension, ... seal grain leather and fitted with a high grade fixed focus rapid rectilinear lens ... diaphragms 2-speed time bulb release and ... shutter, also socket for tripod

For Films.

No. 4—Exposure 3¼×4¼ in., size 8×4½ ×2 in., w't 25 oz.....each $23 20
Carrying Case " 2.60

Fitted with double rapid rectilinear lens and Wianner automatic shutter Focal length of lens 5 in.

No. 5—Exposure 4×5 in., size 8¾×7¼ ×2 in., w't 31 oz each $28.50
Carrying Case..... 2 60

Fitted with rapid rectilinear lens and Wianner automatic shutter. Focal length of lens 5¼ in.

These cameras are durable and reliable instruments which will permit the amateur to produce the highest kind of work. They are made of selected mahogany highly polished. The metal parts, with the exception of the shutter are nickeled. The cameras are covered with black seal leather and are fitted with a Vidil focusing back. They have brilliant reversible finders and tripod sockets for both horizontal and vertical pictures.

ANSCO FOLDING.

For Films.

No. 6—For pictures 3¼×4¼ in., size 8×4½×2 in., has rapid rectilinear lens and shutter, focal length of lens 5¾ in., w't 25 oz each $30 70
Carrying Case " 2.60

No. 7—For pictures 4×5 in., size 8¾×5½×2 in., fitted with rapid rectilinear lens and shutter, focal length of lens 6¼ in., w't 31 oz. ..... .each 39 10
Carrying Case ..... " 2.60

These cameras have rack and pinion for accurate ... rising and lowering and laterally ... rest. Are of mahogany, highly polished. The metal parts, with the exception of the shutter, are nickeled and the cameras are covered with black grain leather. They are fitted with an exceptionally good lens, with a covering capacity designated as F8. The shutter is a double valve new automatic. In other respects they are the same as the Nos. 4 and 5.

For Films.

No. 9—For pictures 3¼×5½ in., size 9½×4½×2 in., fitted with rapid rectilinear lens and Winner shutter, stationary front, focal length of lens 5¾ in., w't 35 oz. ..... each $30.70
Carrying Case ..... " 2.60

No. 9—Fitted with No. 1 Goerz anastigmat lens series III with new automatic shutter, w't 35 oz. ★.....each 106.00
Carrying Case..... " 2.60

No. 10—For pictures 3¼×5½ in., size 9½×4½×2 in., fitted with new automatic shutter, front rising and lowering and shifting laterally, rapid rectilinear lens, focal length of lens 5¾ in., w't 35 oz..... each 39.10
Carrying Case ..... " 2.60

These cameras represent the highest grade of workmanship. A very popular size, for the reason that it allows great scope in photographing landscapes and permits making beautiful panel portraits, especially when using the Ansco portrait attachment. In all other respects they are the same as the preceding Folding Anscos.

SEND FOR SPECIAL ANSCO BOOKLET. ★ *FOR FACTORY SHIPMENT ONLY.*

LAWN MOWERS.

CHAMPION PONY.

30 inch Cut—10 in. driving wheels, 6½ in. open cylinder, three tempered steel blades, high speed reel, double drive, positive ratchet, very strong and neatly decorated, w't 100 lbs.....each $30.00

ONE IN A CASE.

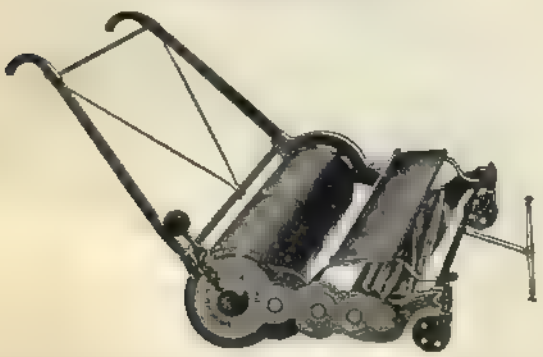
PHILADELPHIA EAGLE.

Open Cylinder, Adjustable Boxes, for taking up the Wear of Journals, Bed Knife Adjustable to the Cylinder, Blades are Riveted to the Spiders, with Seat, Shafts, Draft Pole, and Side Draft Attachment.

Nos.	★130	★135	★140	
Cut	30	35	40	in
Number of blades	5	5	5	
Diameter of roller	14	14	14	in.
Weight	645	670	710	lbs.
Each	$100 00	125 00	150 00	

ONE IN A BOX

PHILADELPHIA PONY.

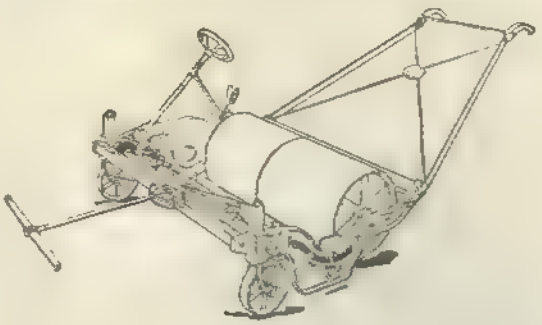


Four Blades, Cut 30 Inches, Diameter of Roller 11¼ Inches, with Draft Rod.

No. 230—*Closed* cylinder, w't 445 lbs.★.....each $100 00
No. 330—*Open* cylinder, w't 450 lbs★..... " 100 00

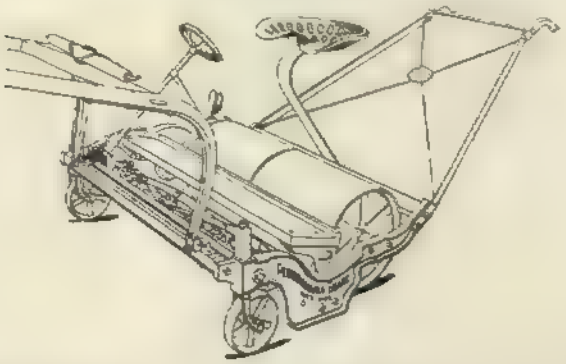
ONE IN A CASE

PENNSYLVANIA GRAND HORSE.



Crucible Tool Steel Blades, 7⅛ Inch Open Cylinder, Diameter of Rollers 15 Inches, with Handles and Draft Irons.

No. 630—Cut 30 in., 4 blades, w't 595 lbs★.....each $100.00
No. 730—Cut 30 in., 6 blades, w't 605 lbs.★..... " 112.50
No. 638—Cut 38 in., 4 blades, w't 675 lbs.★..... " 130 00
No. 738—Cut 38 in., 6 blades, w't 705 lbs.★..... " 142.50

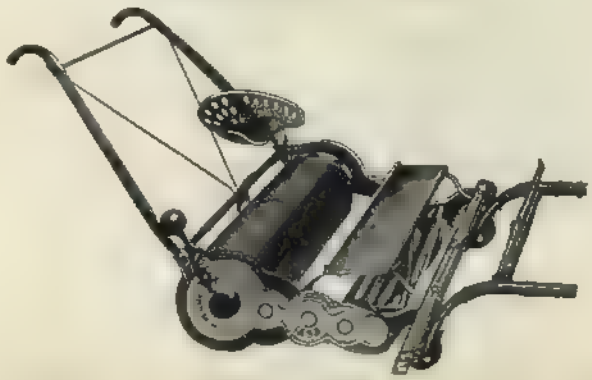


Crucible Tool Steel Blades, 7⅛ Inch Open Cylinder, Diameter of Roller 15 Inches, with Seat, Shafts and Handles.

No. 830—30 in. cut, 4 blades, w't 637 lbs★.....each $120 00
No. 930—30 in. cut, 6 blades, w't 645 lbs★..... " 132 50
No. 838—38 in. cut, 4 blades, w't 720 lbs★..... " 150 00
No. 938—38 in. cut, 6 blades, w't 750 lbs★..... " 162 50

The wheel at the right of the driver's seat regulates the height of cut from ¾ to 2½ inches. The operator, without leaving his seat, can instantly change from low to high cut or an intermediate one

PHILADELPHIA PONY.



Four Blades, Diameter of Roller 11¼ Inches, with Seat, Shafts and Side Draft Attachment.

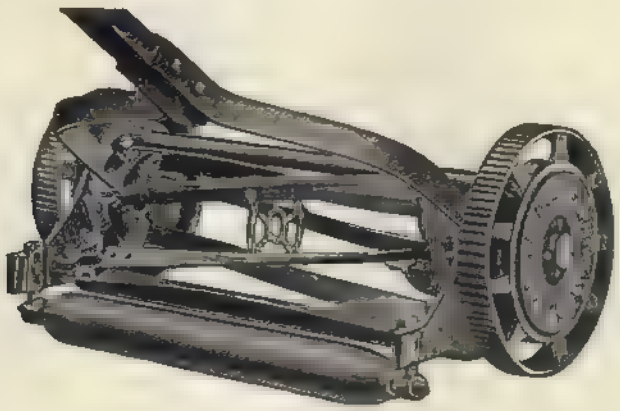
No. 430—Cut 30 in., *closed* cylinder, w't 500 lbs★.....each $120 00
No. 530—Cut 30 in., *open* cylinder, w't 500 lbs.★..... " 120 00

ONE IN A CASE.

★*FOR SHIPMENT FROM FACTORY ONLY.*

LAWN MOWERS.

PHILADELPHIA STYLE "K," HIGH WHEEL.

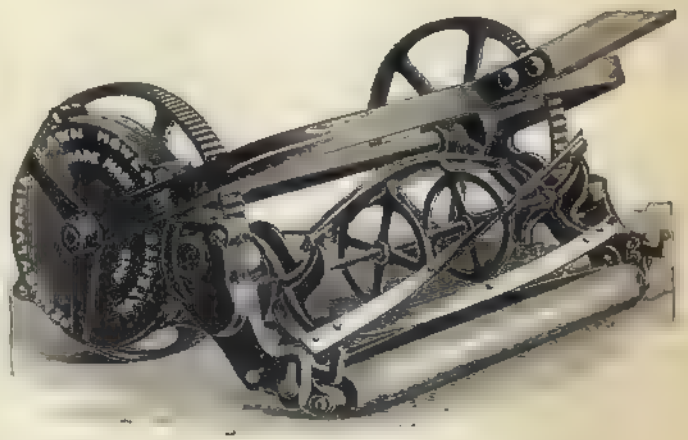


10-Inch Driving Wheels, Five Blades, Open Cylinder, Hardwood Roller and Handle.

Cut	14	16	18 in.
Weight	65	68	73 lbs.
Each	$20 00	22 00	24.00

ONE IN A CASE.

PENNSYLVANIA HIGH WHEEL.

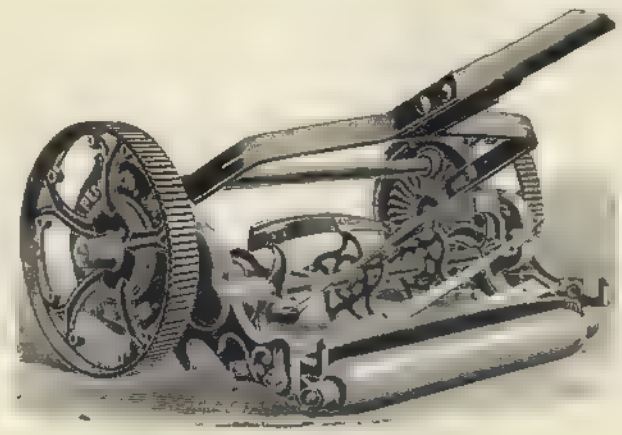


10-Inch Driving Wheels, Four Cast Steel Cutting Blades, 6½-Inch Reel, Hardwood Roller and Handle.

Cut	15	17	19	21 in.
Weight	75	77	81	92 lbs
Each	$25 00	28 00	31 00	34.00

ONE IN A CASE.

PENNSYLVANIA JUNIOR BALL BEARING.

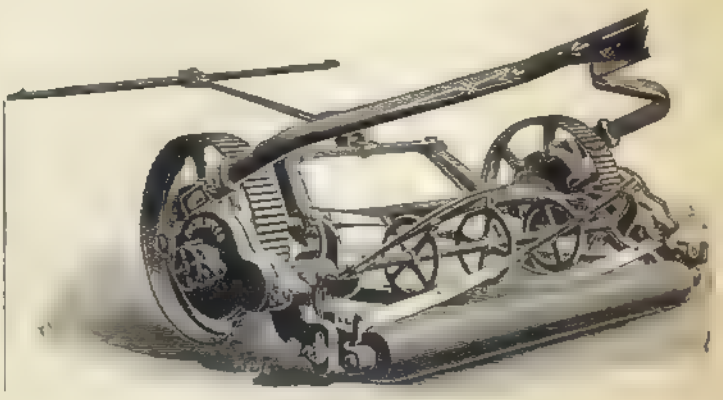


10-Inch Driving Wheels, Five Tempered Crucible Steel Blades, Self-Sharpening Dead Knife, Ball Bearing, Cylinder Journals, 6-Inch Cylinder, Train of Gears each Side, Hardwood Roller and Handle.

Cut	15	17	19	21 in.
Weight	71	74	77	80 lbs.
Each	$25 00	28 00	31 00	34 00

ONE IN A CASE.

PENNSYLVANIA PONY OR TWO-MAN.



25 in. Cut—Large open cylinder, rear cut, 4 blades, Enos bed plate, yielding bed knife, self-sharpening, shifting clutch for throwing out of gear, brass boxes, long bearings, complete with handle and draft irons, w't 110 lbs ★.....each $50.00

ONE IN A CASE.

★*FOR SHIPMENT FROM FACTORY ONLY.*

ASBESTOS SAD IRONS.

No. 70—Laundry set, consists of one asbestos lined hood with handle and lock complete, one 6 lb., two 7 lb double pointed cores and one stand w't per doz. sets 210 lbs., per dozen sets.. ..... $24 00

No. 100—Laundry set, consists of one asbestos lined hood with hand e and lock complete, two 7 lb. double pointed cores, one 7 lb. square heeled polishing core and one stand. w't per doz. sets 218 lbs., per dozen sets.. . ..... $24 00

No. 130—Laundry set, consists of one asbestos lined hood with handle and lock complete, one each 6 lb. and 7 lb. double pointed cores, one 9 lb. square heeled pressing core and one stand. w't per doz. sets 252 lbs.. ..... per dozen sets 25 00

No. 56—Ideal shirt waist set, consists of one asbestos lined hood with handle and lock complete, one 6¾ in. pointed flounce core, one 5 in. square heeled polishing core and one stand, w't per doz. sets 96 lbs per dozen sets.. .. $16 00

No. 66—French set, consists of asbestos lined hood with handle and lock complete, one 6¼ in pointed flounce core, one 4¾ in double pointed core, one 5 in square heeled polishing core and one stand, w't per doz. sets 108 lbs. per dozen sets $20 00

Designed for ladies doing light housekeeping and for boarders; saves sending dainty articles to the laundry or washwoman.

ONE SET IN A LOCK CORNERED, SLIDING COVERED, WHITE PINE BOX

No. 196—Household set, consists of one asbestos lined hood with cover and lock complete, two double pointed cores, one square heeled polishing core, one asbestos lined sleeve hood with cover and lock complete, one double pointed sleeve iron, one pointed flounce core, one small square heeled polishing core and one stand, w't per doz. sets 360 lbs per dozen sets..... $44.00

ONE SET IN A LOCK CORNERED SLIDING COVERED, WHITE PINE BOX.

FAMILY OUTFITS.

No. 660—Asbestos, oil finished hardwood box 17½x12½x4½ in., with brass trimmings, containing 7 cores, 3 hoods with handles complete, and 3 stands, w't per outfit 42 lbs., each $6.50

Set consists of 2 seven lb and 1 six lb laundry cores, 1 nine lb. pressing core, 1 four lb flounce core, 1 three lb. sleeve core, 1 one and one-half lb. tourist iron complete, 1 hood with handle for laundry and pressing, 1 hood with handle for flounce and sleeve, 2 asbestos covered stands and 1 tourist stand.

EXTRA PARTS FOR ASBESTOS IRONS.

No. 71—Asbestos lined hood with handle and lock complete for laundry and pressing irons....per dozen $10 00

No. 72—Double pointed laundry cores, per dozen..... 5.00

No. 102 Square heeled cores, per dozen 6.00

No. 41—Asbestos lined hood with handle and lock complete for sleeve and flounce irons.....per dozen 4 00

No. 73—Stands..... 1 50

No. 10—Tourist, consists of one asbestos lined hood with handle and lock complete, one double pointed core and one stand, w't 1½ lbs., per dozen $4 00

The same pattern as the larger iron, but much smaller. In addition to being a delightful toy, this iron is just the thing for tourists and college girls and can be heated on a lamp. Is especially adapted for ironing small sleeves, fancy work, etc.

ONE IN A PASTEBOARD CARTON.

No. 40—Sleeve, consists of one asbestos lined hood with handle and lock complete, one double pointed 2½ lb. core and one stand .....per dozen $8 00

Very handy for children's clothes, sleeves, neckbands, etc. Hood fits flounce and shirt waist iron

ONE IN A PASTEBOARD CARTON.

No. 50—Flounce, consists of one asbestos lined hood with handle and lock complete, one 4 lb. pointed core and one stand .. ..per dozen $10.00

This long nosed iron is designed for ironing tucks, flounces, etc

ONE IN A PASTEBOARD CARTON.

No. 80—Pressing, consists of one asbestos lined hood with handle and lock complete, one 9 lb. square heeled pressing core and one stand w't 10½ lbs. .....per dozen $20 00

This iron is indispensable for pressing tailor-made garments, suits, trousers or for any purpose where an iron of more than ordinary weight is required. Heavy enough to iron smooth without pressure.

ONE IN A BOX, HALF DOZEN IN A CRATE.

SAD RONS AND EXTRAS.

O.V.B. SAD IRONS.

Solid Base, O.V.B. Handles.

O.V.B.—Nickel plated face, sides and top, set consists of three double pointed irons, one O.V.B. handle, one asbestos stand, w't per set 14¼ lbs....per case $12 00

In the O.V.B. Iron every care has been used to produce something superior in quality and finish for those who want the best. Between the heavy solid base and the flush top is a layer of asbestos, which greatly increases the heat retaining qualities. The top as well as the base is ground, polished and heavily nickel plated

ONE SET IN A BOX. SIX SETS IN A CASE

MRS. POTTS' SAD IRONS.

No. 650—Nickel plated face and sides, aluminum bronze top, aluminum bronze cast stretcher and copper plated stand in sets of three with detachable wooden handle, w't per set 14¼ lbs...per case $7 50

SIX SETS IN A CASE.

Genuine Enterprise.

No 150—Nickel plated face and sides *japanned top*, set consists of three irons, one stand, one detachable handle with *japanned stretcher*, w't per set 15½ lbs., per case ... $7 75

No 150 Nickel plated face and sides, *tinned top*, set consists of three irons, one stand, one detachable handle with *tinned stretcher*, w't per set 15½ lbs.....per case 8 25

SIX SETS IN A CASE

GIRLS' SAD IRONS.

No. 90—Nickel plated, walnut detachable handle, length 5 in., with stand, w't each 1⅝ lbs. ...per dozen $5 00

ONE DOZEN IN A CASE.

OBER SAD IRONS.

Solid Base, Patent Handles.

No. 95—Nickel plated face and sides, aluminum tops, set consists of one double pointed one square heel and one sleeve iron, nickeled handle and one stand, w't per set 14½ lbs., per case $12.00

These irons are solid and hold the heat much longer than hollow irons.

SIX SETS IN A CASE.

OBER SLEEVE IRONS.

Solid Base, Patent Handles.

No. 81—Nickel plated bottom and sides, aluminum top, length 7⅜ in., width at heel 2¾ in., nickeled handle, w't each 1 lbs..... per dozen $7 50

GASOLINE AND ALCOHOL SAD IRONS.

Nickel Plated, Ebonized Wood Handles.

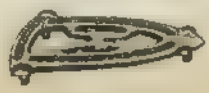
No. 36—MODERN, adapted for *gasoline*, w't each 6 lbs .....per dozen $48.00

No. 37—MODERN adapted for *alcohol* w't each 6 lbs.....per dozen 48 00

No odor. No soot or grease streaks. Does away with walking from ironing board to stove. Always evenly heated. Does not stick from cooling of base. Saves time and fuel, for the cost to operate is about one cent per week

ONE IN A BOX. SIX IN A CASE.

EXTRA SAD IRON STANDS.



No. 250—Coppered, w't per doz. 7 lbs., per dozen..... $0 75

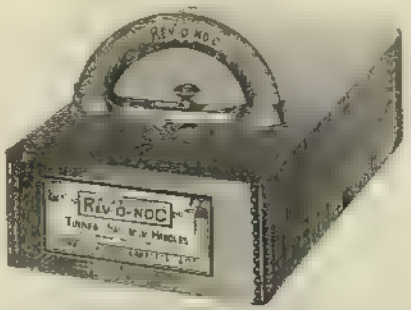
EXTRA HANDLES.

"OUR VERY BEST."

O.V.B.—Extra selected and carefully finished handle, nickel plated malleable indestructible stretcher, w't per doz. 8 lbs.....per dozen $4.50

Only the best wood capable of taking a smooth high finish is used in O.V.B. handles. The stretcher is malleable iron, nickel plated and polished. Note, that instead of fitting flat against the wood, there are four small points of contact forming an insulation and insuring an always cool handle.

ONE DOZEN IN A BOX.



"REV-O-NOC."

No. 810 REV-O-NOC—Extra selected hazelwood handle, with tinned non-breakable stretcher, attached with the longest and heaviest screws practical, w't per doz. 7¾ lbs.....per dozen $2 50

ONE DOZEN IN A BOX.

No. 610—Walnut handle, with *japanned* cast stretcher, w't per doz 6¼ lbs., per dozen..... $1 20

No. 310—Walnut handle, with *tinned* cast stretcher, w't per doz 6 lbs., per dozen..... 1 80

HALF DOZEN IN A PACKAGE.

No. 22 No 12

No. 22—OBER, japanned, for all makes of Potts' sad irons, w't per doz. 6¾ lbs., per dozen $1 20

No. 12—OBER, japanned, for Ober patent sad irons, w't per doz. 7½ lbs., per dozen 1.20

From their peculiar shape it will not cramp the hand. There is no wooden knob on the catch to break off. Screws fastening handle will not get hot and become loose.

HALF DOZEN IN A PACKAGE.

SAD IRONS AND FLUTERS.

COMMON SAD IRONS.

Cast Iron, Wrought Handle, Extra Polished Face.

Nos	4	5	6
W't each	4	5	6 lbs
Per dozen	$3 36	4 20	5 04
Nos	7	8	9
W't each	7	8	9 lbs
Per dozen	$5 68	6 72	7 56

Cast Iron, Wrought Handle, Aluminum Finish. Nickel Plated Face.

Nos	N4	N5	N6
W't each	4	5	6 lbs
Per dozen	$3.84	4 80	5.76
Nos	N7	N8	N9
W't each	7	8	9 lbs.
Per dozen	$6.72	7.68	8 64

COMMON SAD IRON ASSORTMENTS.

Polished, in Cases of about 100 lbs.

No. 1—Assortment consists of two No. 5, six No. 6, six No. 7 and three No. 8, per 100 lbs. $7.00

No. 6—Assortment consists of eighteen No. 6 ..... per 100 lbs. 7.00

No 7 Assortment consists of eighteen No 7 ..... per 100 lbs. 7.00

No 8 Assortment consists of sixteen No 8 ..... per 100 lbs. 7.00

Nickel Plated, in Cases of about 100 lbs.

No. N1—Assortment consists of two No. N5 six No. N6, six No. N7 and three No. N8 ..... per 100 lbs. $8 00

No. N6—Assortment consists of eighteen No. N6 ..... per 100 lbs. 8.00

No. N7—Assortment consists of eighteen No. N7 ..... per 100 lbs. 8.00

No. N8—Assortment consists of sixteen No. N8 ..... per 100 lbs. 8.00

SMALL SMOOTHING IRONS.

No. 2½—2¼ lbs., cast iron, wrought handle, nickel plated face, aluminum finish ..... per dozen $6 00

ONE DOZEN IN A CASE.

POLISHING IRONS.

No. 3½

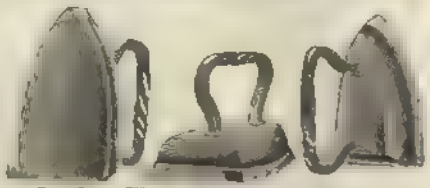
No. 108

No. 3½—3½ lbs., cast iron, wrought iron handle, nickel plated face, aluminum finish, rounded heel ..... per dozen $7.20

No. 108—4 lbs., Troy, cast iron, wrought iron handle, polished top and sides, perforated bottom ..... per dozen 7.20

ONE DOZEN IN A CASE

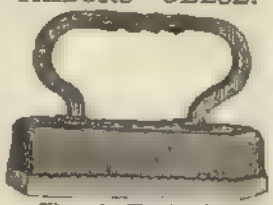
TAILORS' SMOOTHING IRONS.



Cast Iron, Wrought Handle, Polished Face.

Nos	310	312	314	316
W't each	10	12	14	16 lbs
Per dozen	$12.00	14 40	16 80	19 20
Nos	318	320	322	324
W't each	18	20	22	24 lbs
Per dozen	$21.60	24 00	26 40	28 80

TAILORS' GEESE.



Cast Iron, Wrought Handle, Polished Face.

Nos	512	514	516	518
W't each	12	14	16	18 lbs
Per dozen	$14 40	16 80	19 20	21 60
Nos	520	522		524
W't each	20	22		24 lbs
Per dozen	$24 00	26 40		28 80
Nos	526	528		530
W't each	26	28		30 lbs
Per dozen	$31.20	33.60		36.00

FAMILY CHARCOAL IRONS.

Cast Iron, Polished Body, Malleable Top, Wood Handle, Tin Shield.

Nos	102	103	104
Bottom	7×3¼	6½×4	7×4½ in.
W't each	6	6	6¼ lbs.
Per dozen	$15 00	15 00	15 00

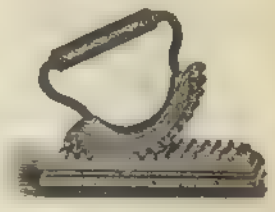
ONE DOZEN IN A CASE.

TAILORS' CHARCOAL IRONS.

Cast Iron, Polished Body, Malleable Top, Wood Handle, Tin Shield.

Nos	116	118
Bottom	11 × 3¼	11½ × 3¾ in.
W't each	16	18 lbs
Per dozen	$30 00	36 00

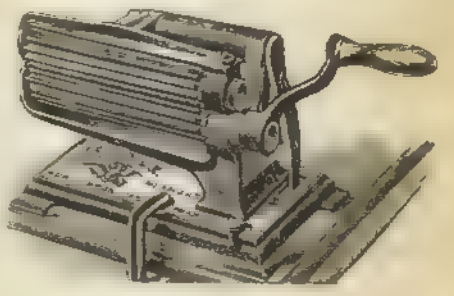
HAND FLUTERS.



No. 6—Geneva, white metal base and roller, iron handle and bottom, size 3×5 in., 15 flutes, w't per doz. 140 lbs., per dozen $18.00

HALF DOZEN IN A CASE.

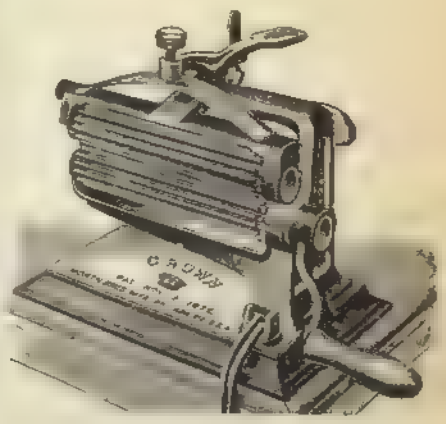
FLUTING MACHINES.



EAGLE, Japanned Iron Frame, Striped, 5½ Inch Brass Rollers, with Four Heaters, One Holder and Clamp.

No. 55—Flutes	18	22
Weight	6¼	6½ lbs.
Each	$5 00	5.00

ONE IN A BOX.



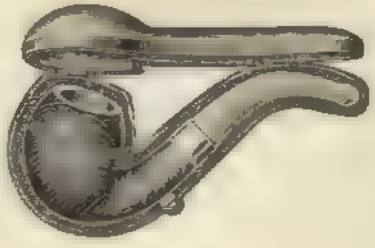
CROWN, Japanned Iron Frame, Striped, 6 Inch Brass Rollers, with Four Heaters, One Pair Tongs and Clamp.

No. 60—Flutes	15	18	22
Weight	12	13½	15 lbs.
Each	$6.00	6.00	6 00

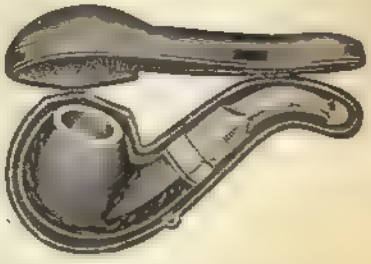
ONE IN A BOX

FRENCH BRIAR PIPES.

No. 3770—4⅜×1¾ in., bent bull-dog shaped briar bowl, with square amber mouth-piece, chased gold top and band, plush lined leather case.....per dozen $54 00

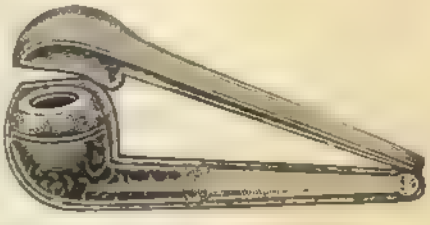


No. 3851—4¼×1¾ in. bent round bull-dog shaped briar bowl, English finish, round amber mouth-piece, sterling silver band, and plush lined chamois case per dozen..... $58 50

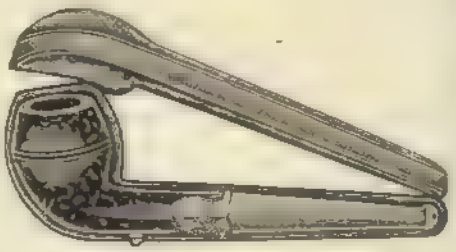


No. 3294—4¾×1¾ in., large heavy bent college shaped briar bowl, with heavy saddle amber mouth-piece and sterling silver band, plush lined leather case, per dozen..... $67.50

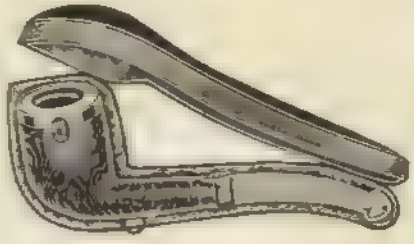
No. 3765—5¾×1⅞ in., round heavy lumbermen's briar pipe with egg shaped bowl and round heavy amber mouth-piece, chased gold filled fancy band, and chamois case, ...per dozen $58 50



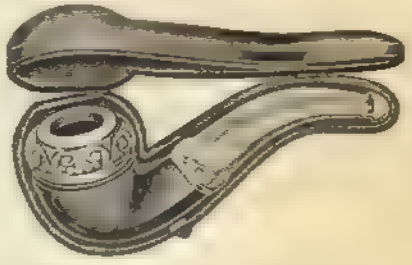
No. 3753—6¼×1¾ in., straight bull-dog shaped French briar bowl, square genuine amber mouth-piece, gold filled top and band with raised silver wire, beautiful plush lined chamois leather case, per dozen..... $90 00



No. 3738—6×1⅞ in., straight bull-dog shaped briar bowl, with genuine amber mouth-piece, long sterling silver band with raised silver wire, plush lined chamois leather case..... per dozen $58.50



No. 3881—6¼×1¾ in., flat regal busch shaped bowl, with gold filled top and band and medallion heads extending on the pipe, chamois plush lined case per dozen..... $63 00



No. 3781—5×2¼ in., bent square bulbitch French briar, with solid amber mouth-piece and raised chased gold top and band, chamois leather plush lined case, per dozen..... $99 00

FRENCH BRIAR PIPES.

No. 935—6×3½ in., long straight bull-dog shaped briar bowl, with fancy twisted celluloid bit and carving with silver wire around the bowl. per dozen $9 00

No. 991—6½×3½ in., large straight bull-dog briar bowl, with heavy celluloid mouth piece and filigree brass finished top and band .....per dozen $9 00

No. 1804—SETTER SKULL, 4¾×2½ in., briar bowl, with vulcanized rubber push bit and nickel band... per dozen $9.00

A very nobby article.

No. 9014—WOTAN, 5½×2½ in., straight bull-dog shaped briar bowl, with flush vulcanized rubber push bit and sterling silver band.....per dozen $10.50

No. 9017—WOTAN, 5×2½ in., straight square egg shaped briar bowl, with vulcanized rubber push bit and sterling silver band..... per dozen $10.50

No. 9009—WOTAN, 4¾×2½ in., bent egg shaped bowl, with round vulcanized rubber push bit and sterling silver band..... per dozen $10.50

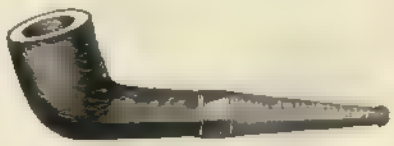
No. 9008—WOTAN, 4½×2¼ in., English hand made briar bowl, bent college shape and sterling silver band, vulcanized rubber bit..... .....per dozen $10 50

No. 2633—5½×1½ in., large heavy flat briar pipe with large Hungarian shaped bowl and broad ferrule, genuine amber mouth-piece..... per dozen $18 00

No. 2502—5×1¾ in., straight bull-dog briar bowl with genuine square amber mouth-piece .... per dozen $18.00

No. 2641—YACHT, 6½×1¾ in., long flat woodstock shape, select French briar bowl, novel French finish, with genuine flat amber mouth-piece. ....per dozen $18.00

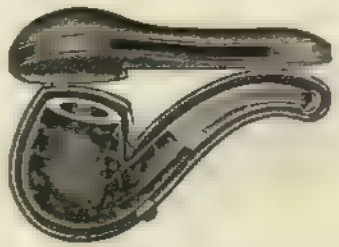
No. 2927—4½×1¾ in., large bent square egg shaped briar bowl, with square genuine amber mouth-piece. per dozen $21.00



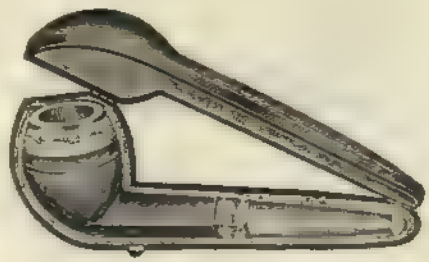
No. 2563—5½×2¼ in., straight square woodstock shaped briar bowl, sterling silver band and genuine amber mouth-piece.....per dozen $22 . 50

ONE DOZEN IN A BOX.

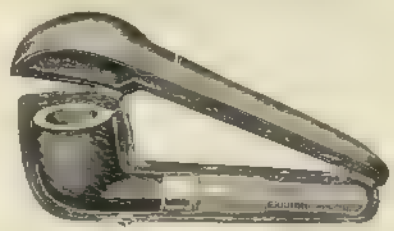
No. 2963½—4×1¾ in., bent college shaped bowl, with 2 in saddle genuine amber mouth-piece ... . . .per dozen $24.00



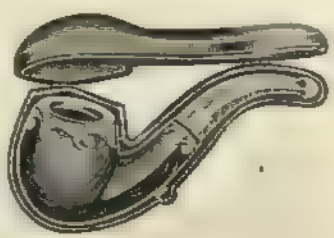
No. 3656—4½×1¾ in., bent square egg shaped briar bowl, improved English finish square amber mouth-piece, plush lined chamois case.....per dozen $45 00



No. 3745—5½×1⅞ in., straight bull-dog shaped briar pipe, with square amber mouth-piece and novel chased gold top and band, plush lined, leather case, per dozen..... ... $49 00



No. 3624—4¾×1⅝ in., straight Hungarian shaped English finished briar bowl, with heavy saddle amber mouth-piece, sterling silver band and plush lined chamois case.....per dozen $54 00



No. 3776—4¼×1¾ in., bent egg shaped briar bowl, with square amber bit, fancy design, chased gold top and band, leather case..... per dozen $54.00

FRENCH BRIAR PIPES.

No. 1758—5½×2½ in., flat woodstock shaped briar bowl, with solid rubber push bit and nickel ferrule... per dozen $4 50

No. 1757—5×2¾ in., straight heavy egg shaped briar bowl, with saddle vulcanized rubber push mouth-piece. per dozen $4.50

No. 1519—OREGON, 5½×2½ in., bull-dog shaped briar bowl, with vulcanized rubber push bit.....per dozen $4 50

Bit equipped with double draft.

No. 1508—5½×2¼ in., straight flat egg shaped briar bowl, with flat vulcanized rubber push bit and nickel band, per dozen..... $4 50

No. 1033—4½×2 in., round bull-dog briar bowl, with improved amberine mouth-piece, fire gilt plain top and band, per dozen..... $4.50

No. 911—5×2½ in., bull-dog briar bowl, with saddle celluloid bit, nickel ferrule, per dozen $4 50

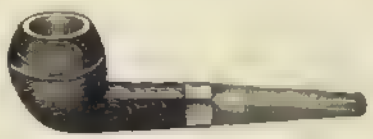
No. 1736B—PURITAN, 4½×2¼ in., bent shaped briar bowl, with rubber push mouth-piece, nickeled ferrule..per dozen $4.50

Fitted with a well to catch the nicotine and saliva, and can be readily cleaned. Also patent mouth-piece.

No. 1945—TORPEDO, 4½×2½ in., bent torpedo shaped briar bowl with solid vulcanized rubber bit nickeled ferrule, per dozen..... $4 50

No. 1202—4×1¾ in., round egg shaped bent stem briar bowl, with nickel ferrule and celluloid mouth-piece....per dozen $4 50

No. 1281—3½×1¾ in., vest pocket shape bent briar bowl, with diamond shaped celluloid bit and nickel ferrule per dozen $4 50



No. 971—SETTER DECK, 5×2¼ in., flat bottom celluloid mouth-piece, bull-dog shaped bowl, nickel ferrule, per dozen..... $5 30

No. 1290—4½×2 in., large bent bull-dog shaped briar bowl, with round celluloid mouth-piece and nickel ferrule, per dozen $6 00

No. 1289—4½×2 in., bent flat egg shaped briar bowl, with new block oval celluloid mouth-piece and nickel ferrule per dozen..... $6 00

No. 1761—5×2¼ in., large round calabash shaped briar bowl, with bent vulcanized rubber push bit and nickel ferrule.....per dozen $7.10

No. 1760—SETTER, 4½×2¼ in., bent bowl, with block vulcanized rubber mouth-piece and nickel ferrule, the ideal desk pipe.....per dozen $7.50

No. 1312—5×3 in., bent tulip shaped briar bowl, with hand-made horn mouth-piece and brass finished top band, per dozen..... $7.50

No. 1331—5×2½ in. German Abguss briar bowl, with hand made horn mouth-piece and horn socket for thorough cleaning of the pipe, nickel band and strong nickel cover..... ... per dozen $9.00

ONE DOZEN IN A BOX

WRENCHES.

GIRARD AGRICULTURAL.

Wrought Steel Bar, Head and Screw, Oil Finished Hardwood Handle.

No. 400—Length.	6	8	10 in.
Opening.	1	1⅛	2 in
W't per doz.	8	16	22 lbs
Per dozen	$10 00	12.00	14 00
No. 400—Length	**12**		**15 in.**
Opening.	2		2½ in
W't per doz.	25		36 lbs
Per dozen	$17 00		24 00

HALF DOZEN IN A PACKAGE 6 TO 12 IN., SIX DOZEN; 15 IN., THREE DOZEN IN A CASE.

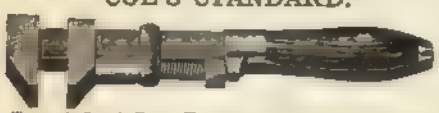
GIRARD STANDARD.

Forged Steel Bar, Head and Screw, Oil Finished Hardwood Handle, Warranted.

No. 401—Length.	6	8	10 in.
Opening.	1	1¼	1¾ in.
W't per doz.	8½	15	25 lbs
Per dozen	$9 00	10 00	12 00
No. 401—Length.	**12**	**15**	**18 in.**
Opening.	2¼	2¾	3½ in.
W't per doz.	35	48	75 lbs.
Per dozen	$14.00	24 00	30 00

HALF DOZEN IN A PACKAGE 6 TO 12 IN., SIX DOZEN; 15 AND 18 IN., THREE DOZEN IN A CASE.

COE'S STANDARD.

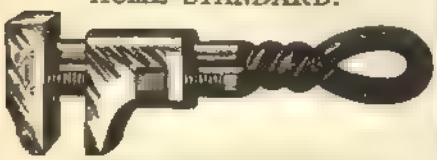


Forged Steel Bar, Head and Screw, Hardwood Knife Handle.

Length	6	8	10 in.
Opening.	⅞	1¼	1¾ in
W't per doz.	8½	16	26 lbs
Per dozen	$9 00	10 00	12 00
Length	**12**		**15 in.**
Opening.	2¼		2½ in
W't per doz.	38		56 lbs
Per dozen	$14 00		24 00
Length	**18**		**21 in.**
Opening	3½		4 in
W't per doz	81		108 lbs
Per dozen	$30 00		36 00

6 TO 12 IN., HALF DOZEN; BALANCE, ONE-THIRD DOZEN IN A PACKAGE, 6 TO 12 IN., SIX DOZEN; BALANCE, THREE DOZEN IN A CASE

ACME STANDARD.

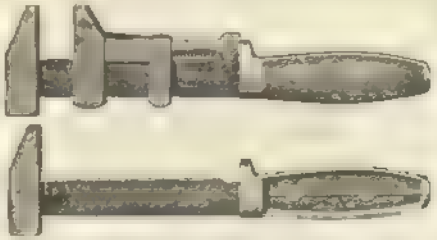


All Steel, Bright Hardened Jaws.

Length	6	8	10 in.
Opening.	1¼	1⅝	2¼ in.
W't per doz.	10	15	22 lbs.
Per dozen	$10.00	12.00	14.00
Length	**12**		**15 in.**
Opening.	3½		4 in.
W't per doz	38		50 lbs
Per dozen	$17 00		24 00

HALF DOZEN IN A BOX, SIX DOZEN IN A CASE

P. S. & W. CO.'S SOLID HANDLE.



One Piece, Solid Steel Forging, Case-Hardened, Oil Finished Hardwood Riveted Handle, Warranted.

No. 86—Length	6	8	10	12 in.
Opening.	1	1¼	1¾	2¼ in
W't per doz.	9	16	26	38 lbs.
Per dozen	$9 00	10 00	12 00	14 00
No. 86—Length.	**15**	**18**		**21 in.**
Opening	2⅝	3		4 in
W't per doz	55	80		126 lbs.
Per dozen	$24 00	30 00		36.00

6 TO 12 IN., HALF DOZEN; 15 AND 18 IN., ONE-THIRD DOZEN; 21 IN., ONE-TWELFTH DOZEN IN A WOODEN BOX WITH SLIDE COVER. 6 TO 12 IN., SIX DOZEN; BALANCE, THREE DOZEN IN A CASE.

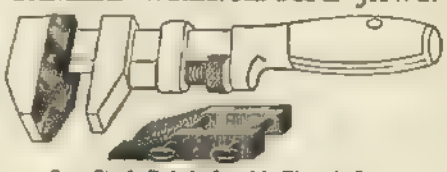
P. S. & W. CO.'S ALL STEEL.

Head, Bar and Handle Forged Solid from One Piece of Steel, Black.

No. 87—Length.	6	8	10	12 in.
Opening	1	1¼	1⅝	2¼ in.
W't per doz.	10	18	33	50 lbs.
Per dozen	$9.00	10 00	12 00	14 00
No. 87—Length.	**15**	**18**		**21 in.**
Opening	2⅝	3		4 in
W't per doz	73	102		162 lbs
Per dozen	$24.00	30.00		36 00

6 TO 12 IN., HALF DOZEN; 15 AND 18 IN., ONE-THIRD DOZEN; 21 IN., ONE-TWELFTH DOZEN IN A BOX

YANKEE WRENCH PIPE JAWS.



Cast Steel, Polished, with Thumb Screws.

No. 2—3¼ in. long, 1⅛ in. between screws, for 6 to 15 in. wrenches, w't per doz. 4 lbs. ..... per dozen $4 50

No. 1—4 in. long, 1½ in. between screws, for 10 and 21 in. wrenches, w't per doz. 4½ lbs. ..... per dozen 5.00

Will fit any ordinary wrench and can be readily attached and detached.

HALF DOZEN ON A CARD.

UNIVERSAL GRIP.

"OUR VERY BEST."

OVB—8¼ in., polished raised surfaces, grips from ¼ to 1 in diameters, dies for rethreading ¾, ½ and ⅝ in. bolts, w't per doz. 11½ lbs.. per dozen $10 00

Drop forged, nicely finished, guaranteed first-class.

ADJUSTABLE "S."

WESTCOTT PATTERN, Japanned, Polished Jaws and Edges.

No. 60—Length.	6	8	10 in.
Open	¾	1	1¾ in
W't per doz.	6½	13	22½ lbs.
Per dozen	$7 20	9 00	12 00
No. 60—Length.	**12**		**14 in.**
Open.	1⅜		2 in
W't per doz.	36		50 lbs
Per dozen	$15.00		21 00

B. & C. WESTCOTT PATTERN, Forged Steel, Japanned, Polished Jaws and Edges.

No. 48 Length	6	8	10 in.
Open.	¾	1	1⅝ in.
W't per doz.	6	12	24 lbs.
Per dozen	$7 20	9.00	12 00
No. 48 Length.	**12**		**14 in.**
Open	1⅜		2 in
W't per doz.	36		57 lbs
Per dozen	$15.00		21 00

To the convenience of the S wrench is added the adjustable features which make it a very handy tool. The opening given is the safe working capacity, although the jaws can be spread considerably wider.

BAXTER, Forged Steel, Polished, Adjustable.

No. 50 -Inches	4	6
Opening.	¼ to ¾	¼ to 1 in.
W't per doz.	3½	5 lbs
Per dozen	$6 00	9.00
No. 50 -Inches	**8**	**10**
Opening.	¼ to 1⅜	¼ to 1⅝ in.
W't per doz.	7½	15 lbs.
Per dozen	$12 00	18.00

HALF DOZEN IN A BOX.

GENERAL PURPOSE.

STANDARD NUT SIZE	BOLT	OPENINGS FINISHED.	EXTREME LENGTH	THICKNESS OF HEAD.
⅜ × ⅜ in.		⅝×⅝ in.	6½ in.	⅜ in
½ × ½ in.		⅞×⅞ in.	7⅛ in.	¼ in
⅝ × ⅝ in.		1⅛×1⅛ in.	8¼ in.	⅜ in
¾ × ¾ in.		1⅜×1⅜ in.	9¼ in.	⅝ in
⅞ × ⅞ in.		1⅝×1⅝ in.	10⅜ in.	⅝ in

Unfinished, drop-forged steel, in sets of 5 sizes, w't per set 2½ lbs. ..... per set $1.15

Sold in sets only.

ONE SET IN A BUNDLE

WRENCHES.

ALLIGATOR PATTERN.

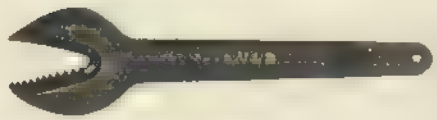
No. 1 CVB—5½ in., cast steel, case hardened, polished jaws, open handle, for ⅛ to ⅜ in. pipe, ¾ to ⅝ in. round iron, w't per doz. 3⅞ lbs... per dozen $4 00
No. 1—Handy, 5½ in., cast steel, polished, open handle, for ⅛ to ⅜ in pipe and ¼ to ¾ in. round iron, w't per doz. 3½ lbs..... per dozen 4 00
No. 01—Maricopa, 5½ in., drop forged steel, open jaws, for ⅛ to ⅜ in. pipe and ⅛ to ¾ in. round iron, w't per doz. 3⅝ lbs.....per dozen 3.00
ONE DOZEN IN A BOX.

Drop Forged Steel, Polished Raised Jaws, Open Handle.

No. 12 CVB—5½ in. for pipe ⅛ to 1 in., for round iron ¼ to ¾ in., w't per doz 4¾ lbs .....per dozen $4 50
No. 13 CVB 7 in., for pipe ¼ to ¾ in., for round iron ⅜ to 1½ in., w't per doz. 9¾ lbs..... per dozen 8.00
NO. 12 O. V. B. ONE DOZEN; NO 13 O. V. B., HALF DOZEN IN A BOX

Handy, Forged Steel, Open Handle.

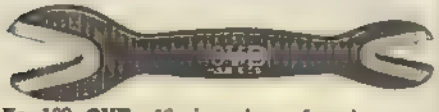
No. 12 -5½ in., for pipe ⅛ to 1 in., for round iron ¼ to ¾ in., w't per doz 4½ lbs.....per dozen $4 50
No. 13—7 in., for pipe ¼ to ¾ in., for round iron ⅜ to 1½ in., w't per doz 10 lbs.....per dozen 8 00
NO. 12, ONE DOZEN AND NO. 13 HALF DOZEN IN A BOX.



Handy, Forged Steel, Solid Handle.

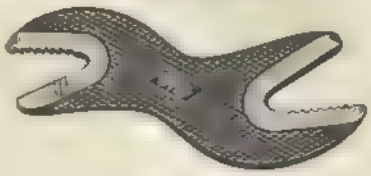
No. 2—9 in., for pipe ⅜ to ⅝ in., for round iron ½ to 1 in., w't per doz 11½ lbs .....per dozen $12 00
No. 3 -15 in., for pipe ½ to 1¼ in., for round iron ¾ to 1⅜ in., w't per doz. 2[illegible] lbs .....per dozen [illegible] 00
No. 4 -22 in., for pipe 1¼ to 2 in., for round iron 1½ to 2¼ in., w't per doz. 72 lbs .....per dozen 36 00
No 5 -27 in. for pipe 1¾ to 2½ in., for round iron 2 to 3 in., w't per doz. 144 lbs..... .....per dozen 54 00
LOOSE.

TWIN ALLIGATOR PATTERN.



No. 130 CVB—10 in., drop forged steel, polished raised jaws, for pipe ⅛ to ¾ in., for round iron ⅛ to 1 in., w't per doz. 15 lbs.....per dozen $18 00
No. 130—Handy, 10 in. forged steel for ⅛ to ¾ in. pipe and ⅛ to 1 in. round iron, w't per doz. 15 lbs...per dozen 18.00
HALF DOZEN IN A BOX.

ALWAYS READY.



Drop Forged Steel, Chased Body, Polished Rased Jaws.

No. 101 CVB—5 in., for nuts ⅛ to ¾ in w't per doz. 6 lbs....per dozen $4 60
No. 102 CVB -7 in., for nuts ⅛ to 1¼ in w't per doz. 12¾ lbs., per dozen. .. 6 30
HALF DOZEN IN A BOX.

Always Ready, Forged Steel, Chased Body, Polished Jaws.

No. 101 -5 in., for nuts ⅛ to ¾ in. w't per doz 6 lbs per dozen $4 60
No 102 -7 in. for nuts ⅛ to 1¼ in. w't per doz 12 lb per dozen 6 30
HALF DOZEN IN A WOOD BOX

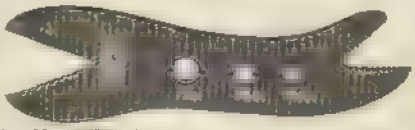
Drop Forged Steel, Nickel Plated, Polished.

No. 1 CVB—5 in., for nuts ⅛ to ¾ in., w't per doz. 6 lbs .. per dozen $ 5 00
No. 2 CVB —7 in., for nuts ⅛ to 1¼ in., w't per doz. 12¾ lbs per dozen 6 75
No. 2½ CVB—9 in., for nuts ⅛ to 1¾ in., w't per doz. 24¾ lbs., per dozen. 10.50
No. 3 CVB —11 in., for nuts ¼ to 1¾ in., w't per doz 36 lbs..per dozen 16.00
HALF DOZEN IN A BOX.

Always Ready, Forged Steel, Nickel Plated, Polished.

No. 1 —5 in., for nuts ⅛ to ¾ in., w't per doz 6 lbs..... per dozen $ 5.00
No. 2 —7 in., for nuts ⅛ to 1¼ in., w't per doz 9½ lbs.... ..... per dozen 6.75
No. 2½—9 in., for nuts ⅛ to 1¾ in., w't per doz. 24 lbs..... per dozen 10.50
No. 3 —11 in., for nuts ¼ to 1¾ in., w't per doz 36 lbs..... per dozen 16 00
HALF DOZEN IN A BOX.

BOLT.



No. 23 CVB Black, solid, cast steel of superior quality, oil tempered, rethreads bolts ⅜, ½ and ⅝ in., for round iron ¼ to ⅝ in., w't per doz. 3⅞ lbs... .....per dozen $5 50
ONE DOZEN IN A BOX.

No. 27 CVB—Nickel plated, solid cast steel of superior quality, oil tempered, rethreads bolts ⅜, ½ and ⅝ in., for round iron ¼ to ⅞ in., w't per doz. 4¼ lbs. .....per dozen $7.50
ONE DOZEN IN A BOX.

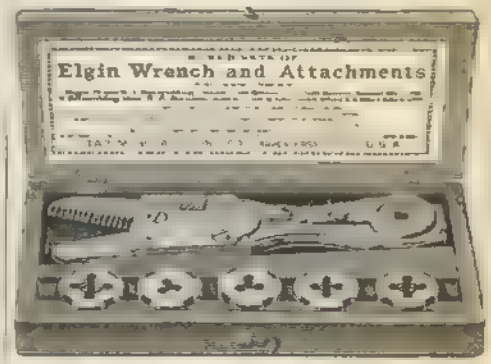
ELGIN WRENCHES.

Jaw. ¼ and ½ in. Inserts

Rethreading Attachment

No. 202—Wrenches, wrought steel hardened jaws, nickel plated and polished, length 7 in., for ⅛ to ⅝ in. pipe and ⅛ to ¾ in round iron, w't per doz. [illegible] lbs. per dozen $12.00
Extra Toothed Jaws ..... " 3 60
Dies or Inserts..... " 6 00
Rethreading Attachments, with one die or insert.....per dozen 12 00
The upper part of wrench is adjustable and is held open by a spring. It can be closed by the thumb nut until both jaws meet, giving the tool a wide range of work. The extra jaws are very easily adjusted and they renew the wrench indefinitely. The rethreading attachment which fits into the handle makes a ratcheting die stock. The dies can be had in ¼, ⅜, ½, ⅝ and ¾ inch. Also pump rod dies ⅜, ½ and ⅝ inch
WRENCHES, ONE DOZEN IN A BOX. RETHREADING ATTACHMENTS WITH DIE OR INSERT, ONE IN CARTON.

ELGIN WRENCH SETS.



Elgin, in sets consisting of 1 Elgin wrench, 1 rethreading attachment having a ¼ in. square insert for taps, 5 rethreading dies in strong black walnut case, w't per set 1⅞ lbs .....per set $5 50

STEEL BRACE.

No. 95—Inches ...	⅝	⅞	1⅛	1⅜
For nuts on bolts..	⅞	1⅛	1⅜	1⅝ in.
W't per doz.....	1⅝	2¾	2¾	3¾ lbs.
Per dozen $1 75	2.00	2 00	2 50	
No. 96—Inches ...	⅝	¾	⅞	1
For nuts on bolts..	⅞	1⅛	1⅜	1⅝ in.
W't per doz.....	4½	5¾	6¾	8 lbs.
Per dozen $2.50	3.00	3 50	4 00	

ONE QUARTER DOZEN IN A BOX

PIPE TOOLS.

STILLSON PIPE WRENCHES.

Blued, Double Spring, 8, 10 and 14 Inch Have Hardwood Handle, Balance Solid Japanned Handle.

No. 20—Ins.	8	10	14
For pipe	⅛ to ¾	⅛ to 1	¼ to 1½ in.
Weight	1½	2½	3½ lbs.
Each	$2 00	2 25	3 00

No. 20 Ins.	18	24	36
For pipe	¼ to 2½	¼ to 2½	½ to 3½ in.
Weight	11	13	15 lbs.
Each	$4 00	6 00	12 00

6 TO 24 IN. HALF DOZEN, 30 IN. ONE-SIXTH DOZEN IN A BOX.

EXTRA PARTS FOR STILLSON WRENCHES.

Jaw.	Nut		Frame
Inches	6	8	10	14
Jaws.....each	$0 75	.75	.80	1 00
Nuts	" .11	.11	.14	.17
Frames	" .25	.25	.30	.50
Inches	18	24		36
Jaws	each $1	2 00		4 75
Nuts	"	.75		.75
Frames	"	.50		1 00

TRIMO PIPE WRENCHES.

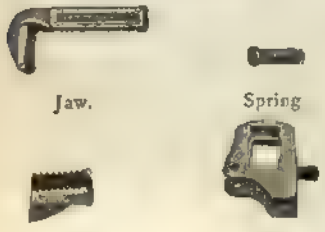
Japanned, Polished Head and Jaws.

No. 25—Ins.	6	8	10	14
For pipe	⅛ to ½	⅛ to ¾	⅛ to 1	¼ to 1½ in.
Weight	½	¾	1½	3½ lbs.
Each	$2 00	2.00	2 25	3 00

No. 25—Ins.	18	24	36	48
For pipe	¼ to 2	¼ to 2½	½ to 3	¾ to 5 in.
Weight	5	8	16	25 lbs.
Each	$4.00	6 00	12 00	18 00

6 TO 24 IN. HALF DOZEN; 36 AND 48 IN., ONE-SIXTH DOZEN IN A CASE.

EXTRA PARTS FOR TRIMO WRENCHES.



Insert Jaw.		Frame.			
Inches	6	8	10	14
Movable Jaws..each	$0.67	.67	.75	1.00
Nuts	" .20	.20	.27	.35
Inserted Jaws	" .25	.25	.33	.50
Frames	" .25	.25	.33	.45
Springs	" .03	.03	.03	.03
Frame Pins	" .03	.03	.03	.03
Jaw Pins	" .03	.03	.03	.03
Inches	18	24	36	48
Movable Jaws..each	$1.33	2 00	4.00	6 00
Nuts	" .42	.50	.65	.80
Inserted Jaws	" .55	.65	1.00	1 25
Frames	" .55	.65	.75	1 00
Springs	" .04	.04	.04	.04
Frame Pins	" .04	.04	.04	.04
Jaw Pins	" .04	.04	.04	.04

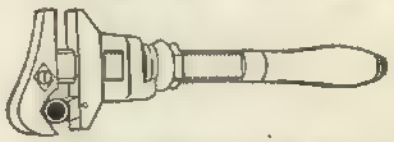
COMBINATION WRENCHES.

Bemis & Calls, Forged Steel, Black, with Short Nut, Hardwood Handle.

No. 44—Ins.	8	10	12	15
Opening	1¼	2¼	2¾	3¼ in.
For pipe	⅛ to ¾	⅛ to 1	⅛ to 1½	⅛ to 2 in.
W't doz	12	25	35	50 lbs.
Per dozen	$2 00	2 50	25 00	37 00
Extra Dogs, each	.20	.25		.30

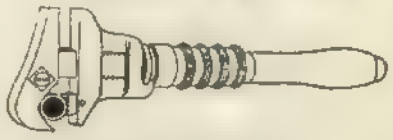
Bemis & Calls, Forged Steel, Black, with Long Nut, Hardwood Handle.

No. 46—Ins.	8	10	12	15
Opening	2¼	2¾	3¼	3¼ in.
For pipe	⅛ to ¾	⅛ to 1	⅛ to 1¼	½ to 2½ in.
W't doz.	14	25	38	55 lbs.
Per dozen	$23 00	25.25	28 50	40 50
Extra Dogs, each	.20	.25	.30	



B. & C. Pattern, Bright Steel, with Short Nut, Hardwood Handle.

No. 43 Inches	10	12	15
Opening	2¼	2¾	3¼ in.
For pipe	⅛ to 1	⅛ to 1¼	½ to 2 in.
W't per doz	20	41	58 lbs.
Per dozen	$25 00	26 00	37 00



B. & C. Pattern, Bright Steel, with Long Nut, Hardwood Handle.

No. 45 Inches	10	12	15
Opening	2¼	3¼	3¼ in.
For pipe	⅛ to 1	½ to 1¼	½ to 2¼ in.
W't per doz	20	43	58 lbs.
Per dozen	$25.25	28.50	40.50

HALF DOZEN IN A BOX.

VICTOR PIPE WRENCHES.

Forged Steel, Polished.

No. 30—Inches	6	8	10
For pipe	⅛ to ½	⅛ to ½	⅛ to 1 in.
W't per ½ doz.	2¼	5	11½ lbs.
Each	$2 00	2.00	2 25

No. 30—Inches	14	18	24
For pipe	⅛ to 1½	⅛ to 2¼	to 2½ in
W't per ½ doz.	20	31¼	52 lbs.
Each	$3 00	4.00	6.00

HALF DOZEN IN A BOX.

VULCAN PIPE WRENCHES.

Drop Forged Steel, Saw Tempered Jaws, Flat Link Chain.

Nos	11	12	13
For pipe	⅛ to 1½	⅛ to 2½	⅛ to 4 in.
Length	20	27	37 in.
Weight	14	24	45 lbs.
Each	$5 00	5 00	7 00

Nos	13½	14	15
For pipe	to	½ to 8	2 to 12 in
Length	44		in
Weight	21	29	49 lbs.
Each	$9 00	11 00	18 00

These wrenches are strong and durable being made from wrought steel. The jaws are of saw temper; the teeth can be sharpened by filing only The flat-link chains are hand made from steel prepared expressly for them. The chain swings from the center and can be used on either side the jaws.

BROWN'S ADJUSTABLE PIPE TONGS.

Solid Steel, Drop Forged.

Nos	1½	2	3	4
Length	18	20	24	in.
For pipe	⅛ to 1	⅛ to 1½	1 to 2	1½ to 3 in.
Weight	3	6	10	lbs.
Each	$3 00	3 00	4 00	6 00

ONE DOZEN IN A CASE.

STANWOOD'S PIPE CUTTERS.

Case Hardened, Tempered Steel Roller.

No. 45—Sizes	1	2	3
Length	17	21	24 in.
For pipe	⅛ to 1	¾ to 2	2 to 3 in.
Weight	3	8	12 lbs.
Each	$1 50	2 25	7.00

ONE DOZEN IN A CASE.

TRIMO PIPE CUTTERS.

With Cutter and Two Rollers.

No. 55 Sizes	1	2	3
Length	15	18	19 in.
For pipe	⅛ to 1¼	⅛ to 2	1¼ to 3 in.
Weight	5	5½	7 lbs.
Each	$4.50	6 00	10.00
Extra Cutters, each	.30	.30	.40

Cuts a square end every time, and the pipe is left ready for the threading die without the use of a file. Extra cutter wheels can be furnished to replace rollers, making a three-wheel cutter.

HORSE SHOES.*

EXTRA LIGHT.

Front.

Hind.

Front.

Size	0	1	2	3	4	5	6	7
W't each	10	13	15½	18½	22	25½	30	39 oz.
Number in a keg	160	123	103	86	73	63	53	41

Steel .. per keg. $
Iron.....

Hind.

Size	0	1	2	3	4	5	6	7
W't each	8	10½	13	16	19½	23	27	31 oz.
Number in a keg	200	152	123	100	82	70	59	51

Steel.....per keg. $
Iron..

LIGHT.

Front.

Size	00	0	1	2	3	4	5	6	7	8
W't each	10	11	14	17	20	25	29	36	41	48 oz.
Number in keg.	160	145	114	94	80	64	55	44	39	33

Steel ... per keg $
Iron . .

Hind.

Size	00	0	1	2	3	4	5	6	7	8
W't each	7	9	11	14	18	22	27	31	35	40 oz
Number in a keg	228	178	145	114	89	73	59	52	46	40

Steel per keg $
Iron .

MEDIUM.

Front.

Size	0	1	2	3	4	5	6	7	8
W't each	13	17	20	25	29	35	40	46	55 oz
Number in a keg	123	94	80	64	55	46	40	35	29

Steel.....per keg. $
Iron.

Hind.

Size	0	1	2	3	4	5	6	7	8
W't each	10½	14	16	20	24	29	34	38	47 oz.
Number in a keg	152	114	100	80	67	55	47	42	37

Steel...per keg. $
Iron ...

HEAVY.

Front.

Size	1	2	3	4	5	6	7
W't each	18½	22	26	30	36	43	49 oz.
Number in a keg	86	75	62	53	44	37	32

Steel ....per keg. $
Iron.....

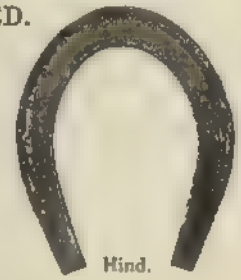
Hind.

Size	1	2	3	4	5	6	7
W't each	15	18	22	28½	38½	38½	47 oz.
Number in a keg	107	85	73	56	48	42	34

Steel.....per keg $
Iron.....

EXTRA SWAGED.

Front.


Hind.

Front.

Size	0	1	2	3	4	5	6	7
W't each	10	13	15½	18½	22	25½	30	39 oz.
Number in a keg	160	123	103	86	73	63	53	41

Steel....per keg. $

Hind.

Size	0	1	2	3	4	5	6	7
Weight	8	10	12½	15½	19	22½	26½	31 oz.
Number in keg.	200	160	128	103	84	71	60	51

Steel. per keg. $

LONG HEEL, LIGHT.

Front.

Hind.

Front.

Size	3	4	5	6	7
Weight	23½	27	32½	38½	45 oz
Number in a keg	71	59	49	42	36

Iron..... per keg. $

Hind.

Size	3	4	5	6	7
Weight	20½	24	29	34	38 oz.
Number in a keg	78	66	55	47	42

Iron.....per keg. $

LONG HEEL, MEDIUM.

Front.

Hind.

Front.

Size	3	4	5	6	7
Weight	27	31	37	43	51 oz
Number in a keg	59	52	43	37	31

Iron.....per keg. $

Hind.

Size	3	4	5	6	7
Weight	24	28	34	40	46 oz
Number in a keg	67	57	47	40	35

Iron.....per keg $

SHORT HEEL.

Front.

Hind.

Front.

Size	0	1	2	3	4	5	6	7
Weight	10	13	15½	18½	22	25½	30	39 oz.
Number in a keg	160	123	103	86	73	63	53	41

Steel...per keg. $

Hind.

Size	0	1	2	3	4	5	6	7
Weight	8	10	13	15	19	22½	26½	31 oz.
Number in a keg	200	160	133	107	84	71	60	51

Steel....per keg. $

*FOR MILL SHIPMENT ONLY, F. O. B. PITTSBURGH.

HORSE SHOES.*

SNOW.

Front.

Hind

Front.

Size	0	1	2	3	4	5	6	7
Weight	30	12	15	18½	23½	28	32	38 oz
Number in keg	200	178	107	86	68	57	50	42
Iron per keg $								
Steel "								

Hind.

Size	0	1	2	3	4	5	6	7
Weight	8	10½	12½	16	19½	23	27	33 oz
Number in a keg	200	152	126	100	82	70	59	48
Iron per keg $								
Steel "								

LIGHT DRIVING.

Front.

Hind

Front.

Size	0	1	2	3	4	5
Weight	10	12	14	17	20	24 oz
Number in a keg	160	133	114	94	80	70
Steel per keg $						

Hind.

Size	0	1	2	3	4	5
Weight	8	9	10	12	15	19 oz.
Number in a keg	200	178	160	133	107	84
Steel per keg. $						

CITY PATTERN, LONG HEEL, LIGHT.

Front.

Size	2	3	4	5	6	7
Weight	20	23	26½	33	39	46½ oz.
Number in keg	80	70	60	48	41	34
Iron per keg. $						
Steel "						

Hind.

Size	2	3	4	5	6	7
Weight	18	21½	27	31	36½	43½ oz
Number in keg	89	74	59	52	43	38
Iron per keg. $						
Steel "						

CITY PATTERN, LONG HEEL, MEDIUM.

Front.

Size	3	4	5	6	7
Weight	28	36	39	47	53 oz
Number in keg	57	44	41	34	30
Iron per keg $					
Steel					

Hind.

Size	3	4	5	6	7
Weight	25	31	35	41	46 oz
Number in keg	64	52	46	39	35
Iron per keg $					
Steel "					

CITY PATTERN, SPRING HEEL, HEAVY.

Hind.

Size	1	2	3	4	5	6	7
Weight	15	18	22	28½	33½	38½	47 oz.
Number in keg	107	89	73	56	48	42	34
Iron per keg. $							
Steel "							

BRONCO.

Beveled Inside, Turned Heel.

Size	00	0	1	2	3
Weight	9	10	12	14	16 oz
Number in a keg	178	160	133	114	100
Steel per keg. $					

We can also furnish plain heel.

MULE SHOES.

Heavy.

Size	*00	*0	1	2
Weight	8	9	12	15 oz.
Number in a keg	200	178	133	107
Iron per keg. $				
Steel "				

Size	3	4	5	6
Weight	18	23	27	32 oz.
Number in a keg	89	70	59	50
Iron per keg. $				
Steel "				

*Nos. 00 and 0 are light, made in steel only.

JACK SHOES.

STEEL

Standard Size, w't 6 oz. ..... per keg $

267 IN A KEG.

★*FOR MILL SHIPMENT ONLY F. O. B. PITTSBURGH.*

HORSE SHOE NAILS.

Drop Forged Regular Head, Extra Quality Cold Drawn Steel Body. Beveled Corners, Reinforced Points.

Hammer Pointed and well Polished will not Split or Break in Driving.

"OUR VERY BEST."

Nos	4	5	6	7	8	9
Per pound	$0 50	.26	23	21	20	19

☞ *Horse Shoe Nails are made of steel of extreme toughness and ductility. Every "run" of metal is subjected to a searching chemical analysis to insure exact uniformity of product. The steel is manipulated to secure a high tensile strength and to eliminate the possibility of fracture.*

FIVE POUNDS IN A PACKAGE; TWENTY-FIVE POUNDS IN A BOX.

PERFECT.

Regular Head, Hot Forged, Pointed and Polished.

Nos	5	6	7	8	9
Per pound	$0 22	.19	.17	.16	.15

FIVE POUNDS IN A PACKAGE; TWENTY-FIVE POUNDS IN A BOX

STAR.

Regular or City Heads, Cold Drawn, Hammer Pointed and Polished.

Nos	4	5	6	7	8	9
Per pound	$0.50	.26	.23	.21	.20	.19

FIVE POUNDS IN A PACKAGE; TWENTY-FIVE POUNDS IN A BOX.

TOE CALKS.

BESSEMER Steel, Medium Pattern, Natural Finish.

Nos	1	2	3	4	5	6
Length	1½	1¾	2	2¼	2½	2¾ in.
Per pound	$0 07	.07	.07	.07	.07	.07

JUNIATA, Medium Pattern, Forged Steel, Natural Finish.

Nos	1	2	3	4	5	6
Length	1½	1¾	2	2¼	2½	2¾ in.
Per pound	$0 08	.08	.08	.08	.08	.08

SWEDES Iron, Medium Pattern, Natural Finish.

Nos	1	2	3	4	5	6
Length	1½	1¾	2	2¼	2½	2¾ in.
Per pound	$0 11	.11	.11	.11	.11	.11

TWENTY-FIVE POUNDS IN A BOX.

WOOD-WORKING MACHINERY.

SCROLL SAWS.

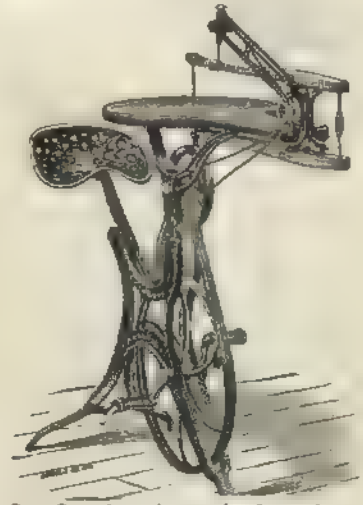
No. 1—NEW ROGERS, japanned iron frame, striped in red and gold, japanned tilting-table, selected ash arms and pitman, steel arbors, carefully fitted to bearings, 4½ in. iron balance wheel, with drilling attachment, improved saw clamps, height of table 32 in. The swing around the table under the arm is 34 in., complete with 1 dozen saw blades, wrench, sheet of designs and drill points, w't 25 lbs., boxed for shipment 42 lbs. ..... each $5 00

ONE IN A BOX. SHIPPED KNOCKED DOWN.

No. 7—Cast iron frame, hard maple table and arms, balance wheel runs on steel arbor, 7 in. blade, complete with 1 dozen saw blades w't 55 lbs.; boxed for shipment, 80 lbs★ ..... each $15 00

For carpenters and builders, cabinet makers and other wood-workers. Will saw pine 8 in. thick 1 ft. per minute; 1 in. thick, 4 ft. per minute. Ordinary rate of speed when sawing, from 800 to 1,200 strokes per minute. Leaves the work as smooth as is possible for any saw to do, and can be taken out and replaced in an instant for inside work. The swing around the blade under the arm is 24 in.

VELOCIPEDE SCROLL SAWS.



No. 2—Cast iron frame, hard maple table and arms, balance and drive wheels run on steel arbors, 7 in. blade, with 1 dozen blades (without attachment) w't 90 lbs., boxed for shipment, 130 lbs★ ..... each $18.00

No. 2B—With boring attachment, including one ⅞ in. bit★ ..... each 20 00

The swing around the blade under the arm is 24 in. The boring attachment can be furnished at any future time, if not desired when ordering the machine. We can furnish extra bits at the following prices, each. ⅛, 15c; ¼, 15c; ⅜, 20c; ½, 20c; ⅝, 25c; ¾, 30c; ⅞, 35c.

COMBINED CIRCULAR AND SCROLL SAWS.

Showing circular saw only

No. 25—Circular saw only (with two 6 in saws), without attachments★ ..... each $35 00

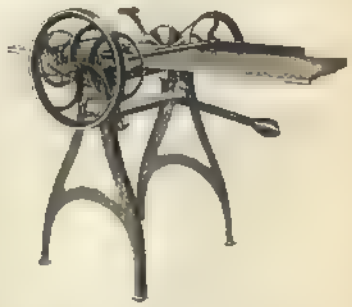
No. 26—Scroll saw attachment (1 dozen saws)★ extra ..... each 5 00

No. 27—Boring attachment, with drill chuck★ extra ..... each 10 00

No. 28—Combined machine, complete with attachments★ ..... each 50 00

Neither the circular nor the scroll saw interferes in the slightest degree with the successful operation of the other. The capacity of the scroll saw is the same as that of No. 7. The table can be handily adjusted up or down by a cam, to allow any desired depth of cut being made by the saws or cutter tools. The circular saws are 6 in. in diameter, and reach 1⅝ in. above the table. Weight boxed for shipment, 350 lbs.

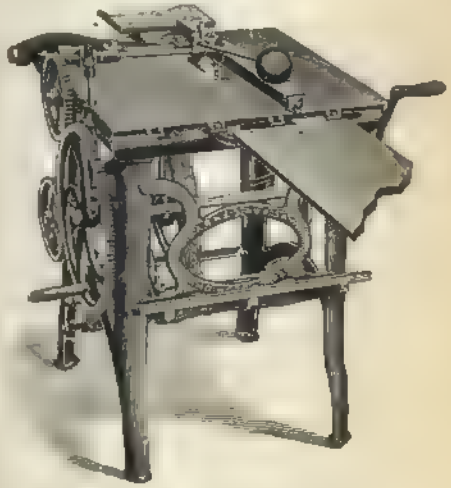
HAND CIRCULAR RIP SAWS.



No. 14—Cast iron frame, w't 190 lbs., boxed 200 lbs., complete with two 10 in. saws★ ..... each $40 00

Will rip boards or planks of either soft or hard wood, of any thickness up to 3¾ in., and of any width up to 10 in. The rollers are self-adjusting to thick, thin, or uneven lumber. The saw can be instantly set to or from the gauge to any width desired. Rabbets, bevels, tenons, etc., can be cut to advantage, and by using two saws side by side, grooving for windows and door steps, etc., can be done. (An extra saw is furnished for this purpose.)

CIRCULAR SAWS.



No. 4—Iron and steel frame, 30×30 in. iron table, complete with self-feed, two 10 in. circular saws (1 each rip and cross-cut), w't 400 lbs., crated 480 lbs★ each $60 00

No. 5—With countershafts, for steam instead of foot power, otherwise same as No. 4★ ..... each 65 00

No. 6—Boring attachments★ ..... " 10 00

No. 7—Countershaft and belt pulleys★ each 1 00

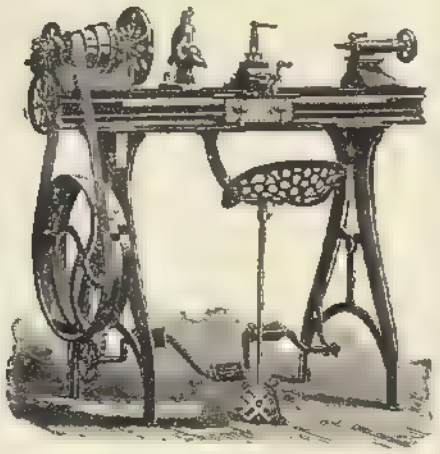
No. 8—Universal mitre gauges★ ..... each 1 00

Hand and foot power for hard or soft, thick or thin lumber. Can be used as a cross-cut saw. Self-feed mechanism can be instantly thrown back to rear of machine, also rip gauge, leaving table perfectly clear for cut-off work. Can be used for rabbeting and grooving. The self-feed can be used for ripping and rabbeting as well as when the machine is used for ripping. Cutter heads are also used for gaining and dadoing, and with knives of suitable width for joining. Can be provided with boring attachment, which is the same as used on the combined machine.

★FOR FACTORY SHIPMENT ONLY.

LATHES AND EMERY GRINDERS.

LATHES.



Cut showing portion of Nos. 5 and 5½ Screw Cutting Engine Lathes.

Barnes all Iron and Steel, Velocipede Foot Power.

No. 5—Lathe, complete as described★ each..... $100.00

No. 5—With extra long bed, 40 in. between centers★.....each 105.00

Swings 11 in. on the face plate, 6½ in. over the tool carriage, and is 3¼ in. between centers. Back-gearing and cone pulleys give great range of speed. Head stock has a steel spindle with ⅝ in. hole through its entire length. Tail stock can be readily set at any desired point, and can be taken off altogether, leaving it free for face plate or chuck work. It can also be set over for turning tapers. Spindles of both head and tail stocks are of steel, with positively true taper holes for the reception of the centers. Tail stock center is self-discharging. Tool carriage is gibbed to the bed. The tool can be set to the work at any position or angle desired; also to bore a taper hole. All the works are securely protected from chips and dirt. As a right or left screw cutting lathe it is simply perfect. All the gearing is cut from solid metal in the best machinery known for gear cutting, and is as true and noiseless as it is possible for metal gearing to be. Weight 335 lbs.; boxed ready for shipment 500 lbs.

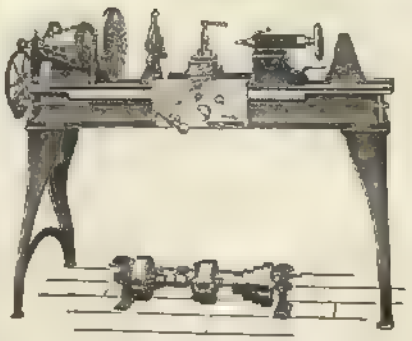
Barnes All Iron and Steel, Velocipede Foot Power.

	LGTH OF BED, FEET.	BETWEEN CENT., INCH.	W'T OF LATHE, LBS	W'T BOXED, LBS	EACH.
No. 5½	5	33	640	775	★$135.00
No. 5½	6	45	690	850	★ 145.00
No. 5½	7	57	740	890	★ 155.00
No. 5½	8	69	790	950	★ 165.00
No. 5½	10	93	950	1150	★ 185.00

If countershaft is taken instead of foot power advance list $6.00.

Designed to do as heavy work as is practical by the use of foot power. It is a strong, thoroughly well made tool in every particular. No. 5½ has patent twin screw feed and screw cutting combination, which makes change of feed in the tool carriage instead of in the head stock. This greatly simplifies and reduces the number of parts commonly used for these purposes. Tail stock has side movement to adjust centers for turning tapers. Head stock has hollow spindle for rods up to ½ in. All the gearing is cut from solid metal. The boxes are accurately fitted to the spindle, with provision to keep them true and take up wear. Steel spindles for both head and tail stocks. Tail stocks can readily be set at any desired point, or be taken off altogether. Swings on face plate, 13 in.; over tool carriage, 8 in. All the works are securely protected from chips and dirt, insuring long wear and durability to the most costly and vital parts of the lathe.

LATHES.



Barnes Automatic Cross-Feed and Compound Rest.

	LGTH. OF BED, FEET.	DISTANCE BETWEEN CENT. INCH.	W'T OF LATHE LBS.	W'T BOXED, LBS	EACH.
No. 13	5	33	640	775	★$162.00
No. 13	6	45	690	850	★ 173.00
No. 13	7	57	740	890	★ 182.00
No. 13	8	69	790	950	★ 192.00
No. 13	10	93	850	1050	★212.00

If countershaft is taken instead of foot power, advance list $5.00.

With the patent velocipede foot power, motion can be started, stopped or reversed instantly, and greater power can be applied on the work than with any old-style foot power, and with greater ease. Head stock has a hollow steel spindle that will take a ½ in. rod through its entire length. Boxes are accurately fitted to the spindle, with provisions to keep them true and take up wear. Tail stock can be readily set at any desired point, or taken altogether from the lathe bed, without removing nuts or bolts. It can also be set over for turning tapers. Spindles for both head and tail stocks are of steel, with positively true taper holes for the reception of the centers. Tail stock center is self-discharging. Tool carriage is gibbed to the bed. All the works are securely protected from chips and dirt, insuring long wear and durability to the most costly and vital parts of the lathe. It is indexed for threads 4 to 38 and the change gears furnished can be combined for many other threads. Swings 13 in. on face plate; over tool carriage, 8 in. Has a splined screw, giving rod feed for turning, reserving the screw for thread cutting only. By a lever in the apron of the tool carriage, the feed can be graduated instantly from coarse to fine, and vice versa.

GRINDING AND POLISHING MACHINES.

Designed for light work, carrying emery and buffing wheels up to 6 in. diameter by 1 in. face.

Used by jewelers, dentists, glass workers and for light grinding on razors, skates, cutlery, etc.

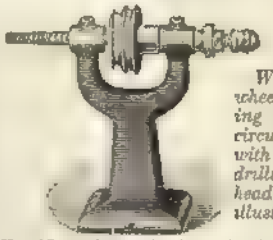
The head has a cone screw on one side, and a nut and collar on the other side for emery wheels etc.

Weight 85 lbs.; boxed for shipment, 115 lbs.

No. 100—Complete, without emery wheel or buffer.★ ..... each$18 00

★*FOR FACTORY SHIPMENT ONLY.*

POLISHING HEADS.



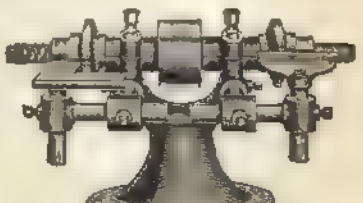
Will run emery wheels, buffers, polishing wheels and small circular saws, also fitted with chuck for holding drills. We furnish head only as shown in illustration.

No. 10—6 in. high, for wheels not larger than 6×½ in., 9 in. spindle, ⅜ in. diameter between flanges, one end 2 in. taper screw, other end fitted to hold emery wheels, etc., 2 speed pulleys for ¼ in. round belting, w't 3½ lbs., each..... $2.00

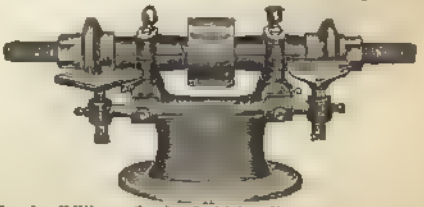
EMERY GRINDERS.

No. 1—For jewelers, dentists etc., will run 2 wheels 6 in. diameter and 1 in. thick, ⅜ in. steel spindle, ½ in. diameter between flanges, 10 in. long, pulley 2 in. diameter, 1½ in. face, w't complete, 9 lbs. .... each $5 00

No. 2—Will run 2 wheels 10 in. diameter, 1½ in. thick, 13 in. steel spindles ⅞ in. diameter in bearings, ¾ in. diam. between flanges, bearings adjustable, 2 in. long, with brass oil cups, pulley 2⅝ in. diameter, 1¾ in. face, w't complete, 20 lbs.....each $10.00



No. 3—Will run 2 wheels 12 in. diameter, 2 in. thick, 18 in. steel spindle 1⅛ in. diameter in bearings, 1 in. diam. between flanges, babbitted bearings 2⅞ in. long, same style as engine lathe bearings, self oiling, pulley 3½ in. diameter, 2¼ in. face, w't complete, 40 lbs.....each $15.00



No. 4—Will run 2 wheels 16 in. diameter, 2½ in. thick, 26 in steel spindle 1⅛ in. diameter in bearings, 1½ in. between flanges, babbitted bearings 4¾ in. long, same style as engine lathe bearings, self oiling, pulley 5 in. diameter, 4 in. face, w't complete, 65 lbs.....each $20.00

WOOD-WORKING MACHINERY.

FOOT POWER MORTISERS.

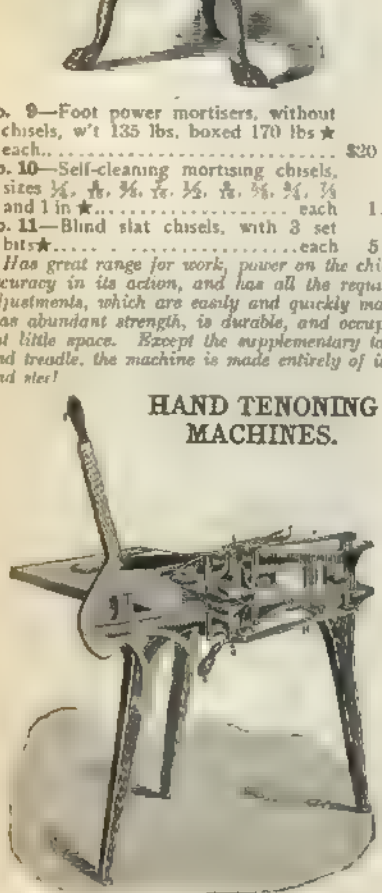
No. 9—Foot power mortisers, without chisels, w't 135 lbs. boxed 170 lbs ★ each.. ..... $20 00

No. 10—Self-cleaning mortising chisels, sizes ¼, ⅛, ⅜, ⅛, ½, ⅛, ⅝, ¾, ⅞ and 1 in ★..... each 1.00

No. 11—Blind slat chisels, with 3 set bits★..... .....each 5 00

Has great range for work, power on the chisel, accuracy in its action, and has all the required adjustments, which are easily and quickly made. Has abundant strength, is durable, and occupies but little space. Except the supplementary table and treadle, the machine is made entirely of iron and steel.

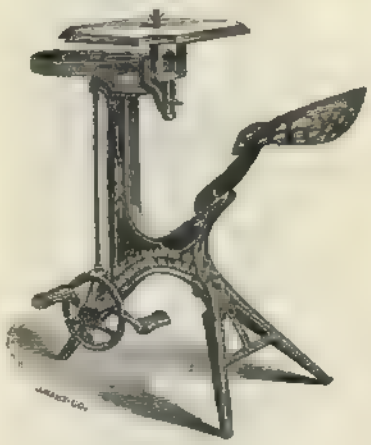
HAND TENONING MACHINES.



No. 18—Complete, w't 100 lbs boxed 140 lbs ★.....each $25 00

Will cut tenons of any length up to 3 in. by repeating the cut any desired length can be made. Will work on stuff of any size up to 2×12 in., and can be adjusted to gauge the length, thickness and shoulders of a tenon. Will not cope a shoulder, but will cut one shoulder further back than the other to accommodate stuff having a rabbeted edge, and will cut one shoulder deeper than the other, or both alike, as desired. Both sides of the tenon are cut at once, or one side only can be cut. Each thrust of the lever cuts a shaving similar to that of a rabbet plane; the rapidity of the thrusts and set of knives (as with a plane) govern the speed of the work. The machine cuts true, smooth, square shoulders and can be set to cut tenons of uniform thickness or distance between the shoulders.

FORMERS.



Barnes.

No. 21—Foot power formers, without knives, w't 80 lbs., boxed 110 lbs.★ each.. ..... $20.00

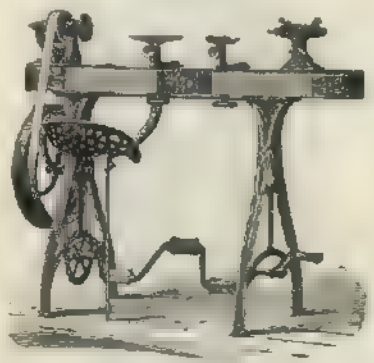
No. 22—Former knives, Nos. 1 to 20★ each.. ..... 1 00

No. 23—Former knives A to M★ each 50

No. 24—Fluting attachments★ extra each. 3 00

For moulding edges of brackets, scroll work, panel work, regular and irregular mouldings of all styles up to ⅞ in. The speed of the knives is from 2,000 to 2,500 revolutions per minute, insuring rapid and smooth work. The knives can be instantly made to rotate in either direction that the grain of the wood may require. The spindle and its bearings are of steel, with adjustments to take up the wear. The parts to set the machine for the use of different knives and work are convenient, and all substantial and durable. The table can be lowered 2¾ in. below the lower cutting edge of the knife.

LATHES.



Barnes, Foot Power.

No. 3C—Complete, with 3 centers (1 a spur), 2 tool rests and sockets, and 1 turned face plate, w't 230 lbs., boxed 320 lbs★..... .....each $40.00

No. 3W—Without lower portion, but with short bench legs★. .....each 25.00

Designed for wood turning. Will take wood 12 in. in diameter and 3 ft. long. Has velocipede foot power and improved seat. Speed can be varied from 1,000 to 2,000 revolutions per minute, and the motion can be started, stopped or reversed instantly. Adjustable sliding seat can be readily moved along to any part of the bed that the work requires. This lathe is made entirely of iron and steel, except the bed, which is of wood. The spindle is of steel, fitted up in the best manner. All the bearings are of steel, making them strong, durable and light-running. The centers are accurately fitted to taper holes. No wrench is required to adjust tail-stock or tool rests and sockets, hand wheels being used instead.

★*FOR FACTORY SHIPMENT ONLY.*

LATHES.

No. 4—Barnes, all iron and steel, velocipede foot power, complete as described below, w't 210 lbs., boxed 265 lbs.★ each..... $50.00

For turning both wood and iron, and for boring, drilling, polishing, etc. Swings 7 in. and takes 20 in. between centers. Speed can be varied from 1,000 to 2,000 revolutions per minute. Solid bed with V-shaped projections, over which the head and tail-stocks and hand and slide rests are fitted. Lead screw for the carriage is operated by hand; carriage can be traveled 20 in., the entire distance between the centers, and can be engaged or disengaged instantly from the lead screw. The upper or cross-feed way on which the tool post moves can be set at any desired angle, and tapers can be turned and taper holes can be bored to the extent of its travel. Tail-stock can be moved and set at any point desired, by the simple turning of a hand wheel, or taken off entirely, leaving bed free for face plate or chuck work. Head-stock spindle has taper bearings, and is capable of very nice adjustment. Tail-stock center is self-discharging. The lathe includes face plate, two pointed centers and one spur center, hand rest, wrenches and necessary belting.

No. 4½—Barnes, all iron and steel, velocipede foot power, complete as described below, w't 270 lbs., boxed 340 lbs.★.....each $75 00

It is a back-geared screw-cutting lathe. Feeds right or left, and cuts screws right or left without change of gearing. Adjustable carriage for taper boring. Thoroughly gibbed for taking up wear. Tail-stock has side movement to adjust centers for turning tapers. Head-stock has hollow spindle for rods up to ⅝ in. It swings 9 in. on the face plate and 4¾ in. over tool carriage, and takes 25 in. between centers, has three speeds, and is suitably arranged for heavy or light work in turning or polishing. With face plate, two pointed centers and one spur center, wrenches and necessary belting.

PLUMBS AND LEVELS.

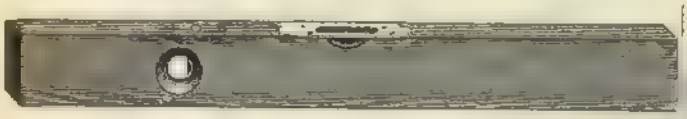
LEVELS.

No. 150—Nickel plated top plate, 2 side views, cherry stained, length 12 in., - - - - - - - per dozen $3.60
ONE DOZEN IN A BOX. WEIGHT 6½ LBS. PER DOZEN.

No. 102—Brass arch top plate, 2 side views, polished, assorted, 10 to 16 in., w't per doz. 20 lbs., - per dozen $ 8.15
No. 103—Brass arch top plate, 2 side views, polished, assorted, 18 to 24 in., w't per doz. 32 lbs., - per dozen 10.25
HALF DOZEN IN A CASE.

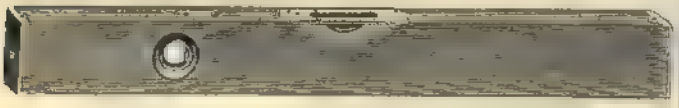
PLUMBS AND LEVELS.

No. 155—Nickel plated top plate, cherry, length 12 in., per dozen - - - - - - - - - - - $4.50
ONE DOZEN IN A BOX. WEIGHT 6 LBS. PER DOZEN.



No. 00—Brass arch top plate, 2 side views, polished, assorted, 18 to 24 in., w't per doz. 34 lbs., - per dozen $14.00
No. 0—Brass arch top plate, 2 side views, polished, assorted, 24 to 30 in., w't per doz. 44 lbs., - per dozen 15 85
HALF DOZEN IN A CASE.

No. 2—Adjustable, brass arch top plate, 2 brass lipped side views, polished, assorted, 26 to 30 in., - per dozen $23.30
No. 3—Adjustable, brass arch top plate, 2 side views, polished and brass tipped, assorted, 26 to 30 in., per dozen 26.00
HALF DOZEN IN A CASE. AVERAGE WEIGHT 50 LBS. PER DOZEN



No. 4—Adjustable, brass arch top plate, 2 brass lipped side views, polished and brass tipped, assorted, 26 to 30 in., per dozen. - - - - - - - - - $29.00
No. 5—Adjustable, triple stock, brass arch top plate, 2 ornamental brass lipped side views, polished and brass tipped, assorted, 26 to 30 in., - - - - per dozen 44.30
No. 10—Adjustable, mahogany, triple stock, brass arch top plate, 2 ornamental brass lipped side views, polished and brass tipped, assorted, 26 to 30 in., - per dozen 51.80
HALF DOZEN IN A CASE. AVERAGE WEIGHT 50 LBS. PER DOZEN

STANLEY'S PLUMBS AND LEVELS.

No. 00S—Brass arch top plate 2 side views, polished, assorted, 18 to 24 in., w't per doz. 33 lbs., - per dozen $7.30
No. 0S—Brass arch top plate, 2 side views, polished, assorted, 26 to 30 in., w't per doz. 42 lbs., - per dozen 8.25
HALF DOZEN IN A CASE.

No. 3S.

No. 2S—Adjustable, brass arch top plate, 2 brass lipped side views, polished, assorted, 26 to 30 in., - per dozen $12.25
No. 3S—Adjustable, brass arch top plate, 2 brass lipped side views, polished and brass tipped, assorted, 26 to 30 in., per dozen, - - - - - - - - - 13.75
HALF DOZEN IN A CASE. AVERAGE WEIGHT 44 LBS. PER DOZEN.

No. 18—Square, brass top plate, polished side views, selected cherry, brass tipped, proved glasses, 26, 28 or 30 in., - - - - - - - per dozen $21.00
ONE IN A BOX. AVERAGE WEIGHT 44 LBS. PER DOZEN

No. 90—Square, brass top plate, 2 brass lipped side views, mahogany, brass tipped, ground glasses, 26, 28 or 30 in., per dozen, - - - - - - - $39.00
ONE IN A BOX. AVERAGE WEIGHT 38 LBS. PER DOZEN

No. 95—Square, brass top plate, 2 brass lipped side views, mahogany, brass bound, ground glasses, 26, 28 or 30 in., w't per doz. 48 lbs., - - - - - per dozen $72.00
No. 96—Square, brass top plate, 2 brass lipped side views, rosewood, brass bound, ground glasses, 26, 28 or 30 in., w't per doz. 64 lbs., - - - - per dozen 80.00

The ground level glass is accurately fitted in a brass case and the only plaster used is that necessary to plug the ends of this case. This brass case is fastened by a screw at each end, directly to the stock of the level, and is entirely independent of the top plate. When a change of adjustment is necessary, the same can be readily changed by means of the screw mentioned above. When new glasses are required they are generally set in the brass case at the factory, and it is a very simple matter for the owner to replace the brass case in the stock of the level.

ONE IN A BOX.

PLUMBS AND LEVELS.

STANLEY'S CARPENTERS' DUPLEX.

Adjustable, Brass Arch Top Plate, Two Brass Circular Side Plates, Brass Tips.

No. 30—Polished cherry stock, assorted, 26 to 30 in., per dozen, - - - - - - - - - $18.00
No. 25—Polished mahogany stock, assorted, 26 to 30 in., per dozen, - - - - - - - - - 24.00
No. 50—Polished triple cherry stock, assorted, 26 to 30 in., per dozen, - - - - - - - - - 24.00

HALF DOZEN IN A CASE. AVERAGE WEIGHT 50 LBS. PER DOZEN

COOKS' CARPENTERS'.

Adjustable, Two Double Glass Covered Views and Nickel Plated Side Plates, Nickel Plated Tips.

No. 01 Mahogany stock, 28 and 30 in., - per dozen $42.00
No. 02—Quadruple mahogany stock, 26 to 30 in., " 48.00
No. 04—Cherry stock, 26 to 30 in., - - " 36.00
No. 05—Quadruple cherry stock, 28 and 30 in., " 42.00

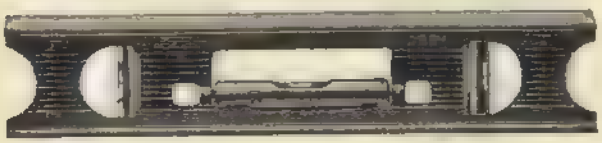
HALF DOZEN IN A CASE. AVERAGE WEIGHT 55 LBS. PER DOZEN

STANLEY'S CARPENTERS' AND MACHINISTS'.

Brass Bound, Rosewood, Two Brass Lipped Side Views, Ground Glasses.

No. 98—Inches, -	6	9	12	18
W't per doz., - -	12	15	18	24 lbs.
Per dozen, - -	$26.00	32.00	38.00	50.00

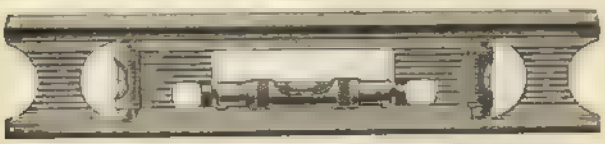
ONE IN A BOX



Japanned Iron, Ground Edges, Nickel Plated Trimmings, Two Plumbs, Proved Glasses.

No. 36—Inches,	6	9	12	18	24
W't per doz., -	12	15	24	39	51 lbs.
Per dozen, -	$12.00	15.00	18.00	21.00	24.00

ONE IN A BOX.



Nickel Plated, Iron Frame, Polished Edges, Two Plumbs, Revolving Glass Protectors, Proved Glasses.

No. 37—Inches,	6	9	12	18	24
W't per doz., -	11	15	25	36	48 lbs.
Per dozen, -	$24.00	30.00	36.00	42.00	48.00

ONE IN A BOX.

STANLEY'S MACHINISTS'.

No. 38½—4 in., nickel plated, proved level glass, 2 side views, w't per doz. 3½ lbs., - - - per dozen $4 50
No. 39½—6 in., nickel plated, proved level glass, 2 side views, w't per doz. 7 lbs., - - - - per dozen 5 50

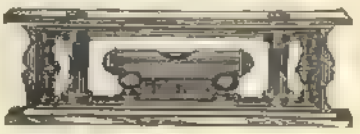
HALF DOZEN IN A BOX

Nickel Plated, Iron Base, Polished Edges, V Bottom, Revolving Glass Protector, Ground Glass.

No. 34V—Inches, -	4	6	8	10
W't per doz., - -	6	9	12	18 lbs.
Per dozen, - -	$12.00	15.00	21.00	27 00

ONE IN A BOX

DAVIS' CARPENTERS' AND MACHINISTS'.



No. 6.

No. 7

Japanned, Nickel Plated Trimmings, with Steel Bars Extending through Each Column.

Nos. - - -	6	7	8	9
Length, - - -	6	12	18	24 in.
W't per doz., - -	12	24	39	51 lbs.
Per dozen, - -	$24.00	27.00	30 00	36.00

ONE IN A BOX

No. 1

No. 2.

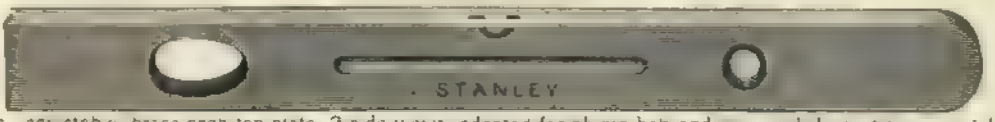
Japanned, Adjustable to Any Angle, with Steel Bars Extending through Each Column.

Nos. - - -	1	2	3	4
Length, - - -	7	12	18	24 in.
W't per doz., - -	15	24	48	60 lbs.
Per dozen, - -	$24.00	30.00	36.00	42 00

ONE IN A BOX.

MASONS' PLUMBS AND LEVELS.

No. 7½ STANLEY'S, brass arch top plate, 2 plumbs, 2 side views polished, 36 in. weight per dozen 50 lbs., - - per dozen $15 75
No. 8 —STANLEY'S, brass arch top plate, 2 plumbs, 2 side views, polished, 42 in., weight per dozen 58 lbs., - - " 18 00
HALF DOZEN IN A CASE



No. 35—STANLEY'S, adjustable brass arch top plate, 2 side views, adapted for plumb bob and line, polished, 42 in., weight per dozen 56 lbs., - per dozen $19.75
HALF DOZEN IN A CASE

With Plumb Rule.

No. 45 STANLEY'S adjustable square top plate, 2 brass lipped side views, 2 plumbs, with proved glasses, adapted also for plumb bob and line, 48 in., weight per dozen 60 lbs., - per dozen $36.00
The two plumb glasses are set in separate frames, but each on the right hand side. To sight on the line from the workman to a plumb stick, he stands where he sights over above him without turning the level stock end for end. There are also two plumb bob lines, so that the plumb bob can be used from either end of the level. These improvements will be found a great convenience by the workingman.
HALF DOZEN IN A BOX

POCKET LEVELS.

No. 40 STANLEY'S, iron top plate, japanned, length 3¼ in., per dozen, - - - - - - - - - - $1.25
No. 41—STANLEY'S brass top plate, japanned, length 3¼ in., per dozen, - - - - - - - - - 1.50
ONE DOZEN IN A BOX. WEIGHT 2 LBS. PER DOZEN.

No. 14. No. 17.

No. 14—DAVIS', iron, japanned, length 3¼ in., - per dozen $2.50
No. 17—DAVIS', iron, japanned, for square or straight edge, length 3¼ in., - - - - - - per dozen 3.00
HALF DOZEN IN A BOX. WEIGHT 2 LBS. PER DOZEN.

Stanley's, Nickel Plated, Hexagon, Proved Glass.

No. 31 Inches,	- -	2½	3	3½
Per dozen,	- - - -	$3.50	4.25	5.00

HALF DOZEN IN A BOX. AVERAGE WEIGHT 1 LB. PER DOZEN.

No. 200—Mahogany, brass top plate, 2 side views, 6×1⅝ in., w't per doz. 2 lbs - - per dozen $3 00
ONE DOZEN IN A BOX.

LEVEL GLASSES.

Stanley's Proved.

Length, -	1¼	1½	1¾	2	2½ in.
Per gross, -	$9.50	9.50	9.50	10.00	10.50

Length, - -	3	3½	4	Assorted 1¼, 3 & 3½ in.
Per gross, -	$11.50	13.00	14.50	12 00

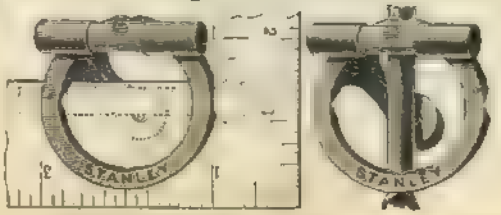
ONE DOZEN IN A BOX.

LEVEL SIGHTS.

No. 1—STANLEY'S, improved, polished and blued for wood levels, w't 4 oz., - - - - - - per pair $0.75
ONE PAIR IN A BOX.

No. 2—STANLEY'S, for iron levels, w't 3½ oz., - per pair $0.75
ONE PAIR IN A BOX.

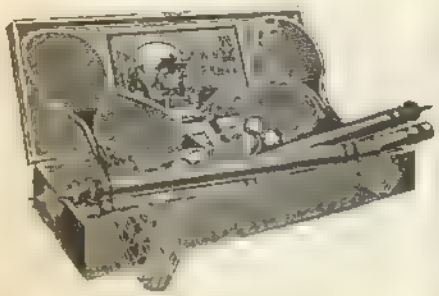
BIT AND SQUARE LEVELS.



No. 44 STANLEY'S, brass frame, w't 3 oz., - - each $0.30
ONE IN A BOX.

TENNIS SUNDRIES.

TENNIS SETS.



No. 3—2 Buckingham and 2 Sterling rackets, 1 net No. 109, 1 pair jointed poles No. 10, 4 Championship balls, 1 set guy ropes, runners and pegs No. 1, 1 mallet, 1 book of rules.....per set $18.00

No. 4—2 Calumet and 2 Washington Park rackets, 1 net No 109, 1 pair jointed poles No. 11, 6 Championship balls, 1 set guy ropes, runners and pegs No. 2, 1 mallet, 1 book of rules, per set..... 27 00

No. 5—4 Riverside rackets 1 net No 110 canvas bound, 1 pair jointed poles No. 11, 12 Championship balls, 1 set guy ropes, runners and pegs No. 2, 1 mallet, 1 book of rules .....per set 37.00

ONE SET IN A NEAT WOOD BOX.

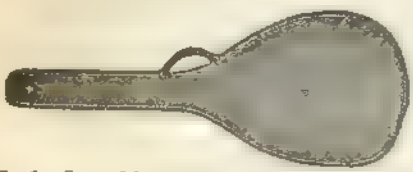
TENNIS BALLS.

"REV-O-NOC."

No. 6 REVERE—CHAMPIONSHIP, per dozen $8 00
No. 12—"CRUSO," " 5 00
No. 1—WRIGHT & DITSON CLUB " 6.70
No. 3—WRIGHT & DITSON CHAMPIONSHIP.....per dozen 8.50
No. 9—GOODRICH'S CHAMPIONSHIP " 8 50

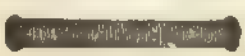
ONE DOZEN IN A BOX.

RACKET CASES.



No. 1—Green felt, well sewed and nicely finished .....per dozen $ 7.50
No. 3—Waterproof mackintosh, well made in every particular....per dozen 15 00

RUBBER RACKET HANDLES.



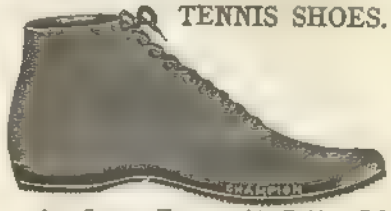
No. 10—Made of good quality corrugated rubber, for covering racket handle to secure better grip.....per dozen $3.50

RATCHET PRESSES.

No. 0—Hardwood frame, four thumb screws at corners ....each $1.40

Players who want to preserve their rackets should always keep them in a press, when not in use

TENNIS SHOES.



Champion, Canvas Uppers with Rubber Soles, Cemented, Black or White.

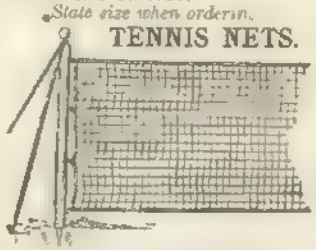
No. 75—Men's Balmorals, per dozen pairs $19 20
No. 85—Boys' Balmorals " 18 00
No. 95—Women's Balmorals " 18 00

Champion, Canvas Uppers with Rubber Soles, Cemented, Black or White.

No. 80—Men's Oxfords, per dozen pairs $16.00*
No. 90—Boys' Oxfords. " 14.40
No. 100—Women's Oxfords. " 14.40

*State size when ordering.

TENNIS NETS.



White Cotton, Plain Bound.

No. 100—Single court, 27 ft., 12-thread per dozen $13 50
No. 106—Double court, 36 ft., 15-thread per dozen..... 19 20
No. 107—Double court 36 ft., 21-thread per dozen..... 27.00
No. 108—Double court 42 ft., 15-thread per dozen..... 22.00
No. 110—Double court, 42 ft., 21-thread per dozen 31 20

White Cotton, Canvas Bound.

No. 106CB—Double court, 36 ft., 15-thread .....per dozen $24.30
No. 107CB—Double court, 36 ft., 21-thread per dozen 32 00
No. 109CB—Double court, 42 ft., 15-thread .....per dozen 28.00
No. 110CB—Double court, 42 ft., 21-thread per dozen 38 00
No. 112DC—Double court, double center, 42 ft., 21-thread .....per dozen 76.00

Tarred, Canvas Bound.

No. 113DC—Double court, double center, hand made, waterproof, 42 ft., 21-thread .....per dozen $126.00

NET POLES.

No. 11.

No. 10—Sectional hardwood, polished, with brass ferrules, 1¼ in. diameter, per dozen pairs..... $18.00
No. 11—Sectional, best polished, jointed, per dozen pairs 26.90
Lawn Tennis Guides.....per dozen 1.68

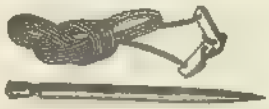
CENTER STRAPS.

No. 3-0.

No. 2-0—Canvas, new device for holding center of net at regulation height of 3 ft., superior to the iron, as it does not chafe the net or deflect the ball, per dozen..... $15.60

No. 3-0—Canvas, fitted with turn-buckle, height of net can be adjusted to a hair; superior to the iron, as it does not chafe the net or cause the ball to glance off or strike out of court, per dozen..... 21.60

GUY ROPES, RUNNERS AND PEGS.



No. 1—Medium size cotton ropes, 4 plain pegs, 4 runners.....per dozen sets $8 00
No. 2—Large cotton ropes, 4 large polished maple pegs, 4 runners, per dozen sets..... 10 00

TENNIS CENTER IRONS.

No. 0—Regulation, galvanized iron, per dozen.....$11.50

COURT MARKERS.

No. 15—9 in. perforated cylinder wheel, per dozen $19 20

Put in any powdered material, such as marble dust, airslacked lime plaster of Paris, or ground plaster, such as is used for fertilizing purposes. By sprinkling immediately after marking, or by marking at evening before the dew falls, the lime is rendered more permanent. Fill the wheel about two-thirds full, which is sufficient for once marking the court.

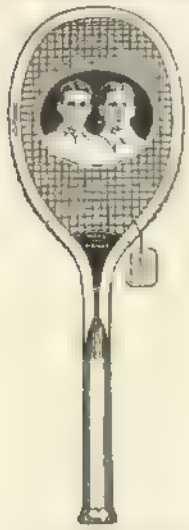
TENNIS TAPES.

Double Court .....per set $5.40
Extra Galvanized Staples....per hundred .80

These tapes are especially adapted for clay, cinder and grass courts. Being light and compact, they can be easily carried and set out almost anywhere in a very short time. They are made up into sets consisting of a sufficient number of strong pieces of webbing (mounted with brass at each intersecting point) for marking out a court correctly. The tapes are fastened to the ground by means of pins and staples, which accompany each set.

WRIGHT & DITSON'S TENNIS RACKETS.

Wright & Ditson rackets weighing 13 oz. and over are guaranteed by the manufacturers for 30 days after date of purchase. Rackets on which claim of defect is made must be forwarded [illegible] transportation charges paid to the factory.



Ward & Wright.

Sutton Star.

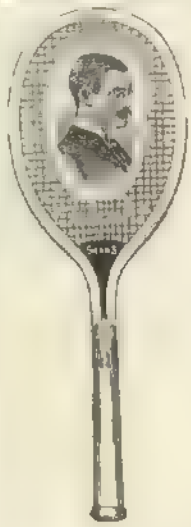
Ward & Wright—Style A, containing extra center strings, made in weights from 13 to 14½ oz., in *waterproof case*, each $12 00

This racket has been made according to instructions given by Beals C. Wright and Holcomb Ward, former champions of the United States.

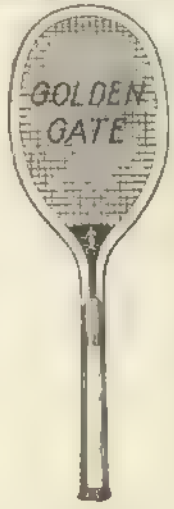
It will stand restringing better than any other style racket. The frame is made of specially selected ash. The gut used in stringing is the best imported, noted for its life and driving qualities.

Sutton Star—Regular stringing, large handle, made in weights from 13 to 14½ oz., *in waterproof case* .....each $12 00

Two national championships have been won with this racket in recent years. It is tightly strung with the best quality of gut.



Sears.



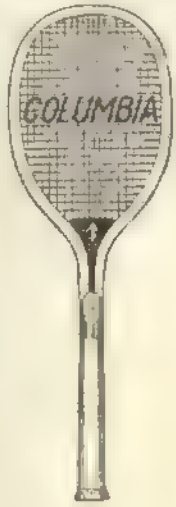
Golden Gate.

Sears—Made in weights from 12½ to 14½ oz. .....each $7 00

The Sears racket is made in the latest model, and is strung with English gut and contains extra center strings.

Golden Gate—Made in weights from 12 to 13½ oz. .....each $5 50

This racket is of the same shape as the Sutton, the handle is a little smaller and the head narrower than regular rackets. Strung with good quality gut.



Columbia.

Park.

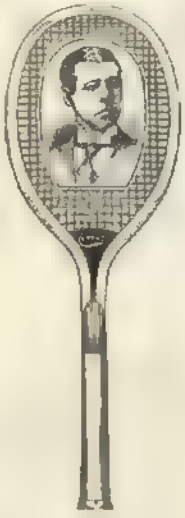
Columbia—Made in weights from 12½ to 14 oz. .....each $4 00

This racket is made after the latest models, and is strung with good gut, with the extra center strings.

Park—Made in weights from 12½ to 14½ oz. .....each $3.50

Well finished throughout, and is strung with good quality gut.

Pim.



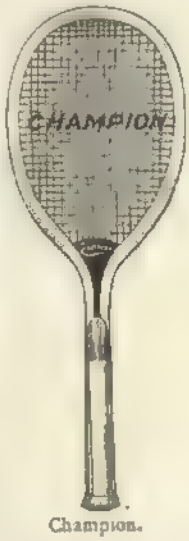
Campbell.

Pim—Plain cedar handle, made in weights from 13 to 14½ oz., *in waterproof case*, each $12 00

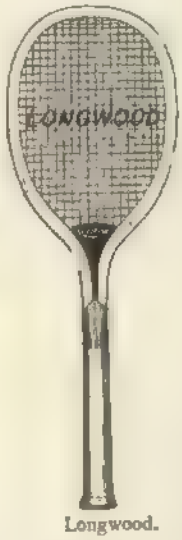
The frame is made of lively ash, and is bound with light but strong tape near the throat, which does not interfere with the natural spring in the wood, and is strung with the very best English gut.

Campbell—Made in weights 13 to 14½ oz., each..... $7.00

The Campbell racket in its new shape is a great success. It is strung with English gut



Champion.



Longwood.

Champion—Made in weights from 12½ to 14½ oz. .....each $5.60

The Champion racket is made in the new and popular Ward & Wright shape, and is strung with an excellent quality of white gut, and contains the extra center strings.

Longwood—Made in weights from 12½ to 14½ oz. .....each $4.80

This racket has for a long time been one of the most popular. It is strung with a good quality of gut.

Country Club.

Hub.

Country Club—Made in weights from 12 to 13½ oz. .....each $3 50

This is a new style racket, strung with good gut, containing extra center strings.

Hub—Made in weights from 12 to 13½ oz. each..... $2 80

The shape and finish of the Hub has made it a very popular racket.

Surprise—Made in light and medium weights.....each $2 00

Strung with good gut, a popular low priced racket. Same shape as the country club.

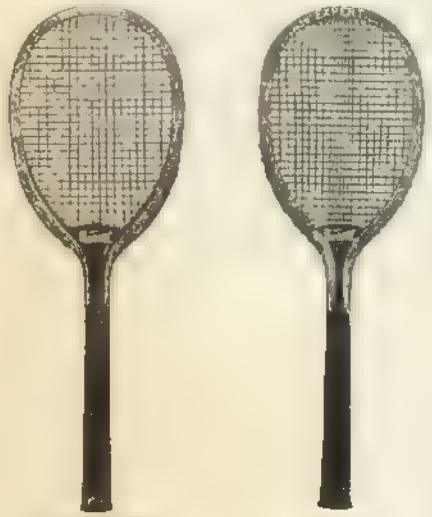
WHEN ORDERING TENNIS RACKETS, ALWAYS GIVE THE WEIGHT.

"REV-O-NOC" TENNIS RACKETS.

REV-O-NOC Rackets are the product of a manufacturer with 35 years experience in tennis racket manufacture.

The wood selected for [illegible] is the choicest second growth ash, which, after thorough seasoning, is bent into frames and these frames are dried by special process. The stringing is done entirely by expert workmen and with the best gut obtainable

We guarantee REV-O-NOC Rackets [illegible] frame breaking and showing defective material or workmanship will entitle the owner to a new racket. This applies only to rackets weighing 13 oz. or more. All rackets to be sent in for our inspection, charges prepaid.



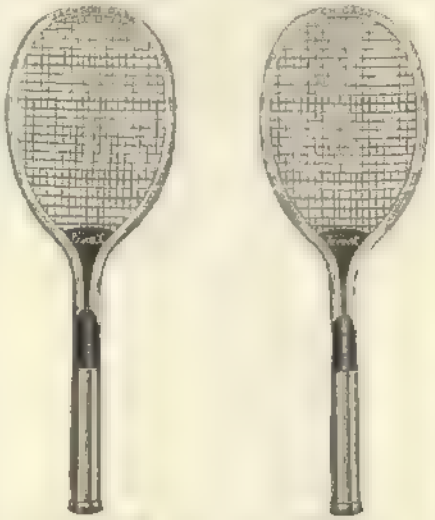
Tournament Expert

Tournament Large size handle strung with extra quality gut, w't 13 to 14½ oz [illegible] each $9 00

Its shape is a gracefully tapered oval Cane shoulders add strength to the frame where inner sides near the bridge mark reinforce the racket where strength is most needed.

Expert Cedar handle, extra number of vertical threads through the center of the [illegible] w't 13 to 14½ oz [illegible] each $8 00

The extra stringing of gut through the center of the [illegible] on the "Expert" rackets increases the driving power and durability.



Jackson Park Chicago.

Jackson Park Combed handle strung with oriental gut, oval shape full size w't 13 to 14½ oz. [illegible] each $6 00

This racket is especially recommended as an ideal ladies' racket The frame is fashioned in oval all edges rightly rounded the shape is a nicely decreased oval Stringing is close center

Chicago—Combed handle strung with oriental gut, narrow oval frame, full size w't 13 to 14½ oz [illegible] each $5 00

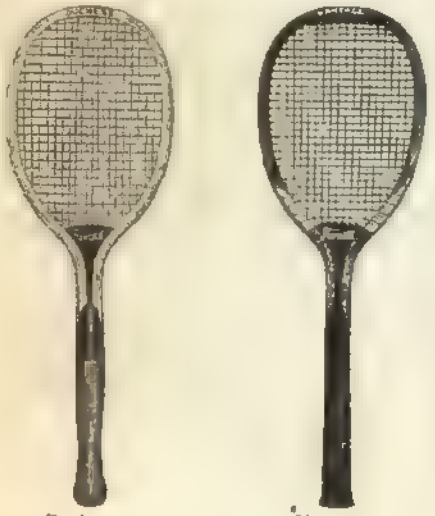
This is the most remarkable racket on the market for the price. Includes all the latest features, such as the narrow oval frame with close center stringing

Calumet. Cleveland.

Calumet—Combed handle, strung with oriental gut full size, w't 12 to [illegible] oz., each [illegible] $3.10

The "Calumet" is one of the most popular rackets bearing the "Rev-o-noc" brand Strongly made handsomely finished.

Cleveland—Combed handle, strung with extra quality gut, oval shape w't 12 to 14 oz [illegible] each $2 90



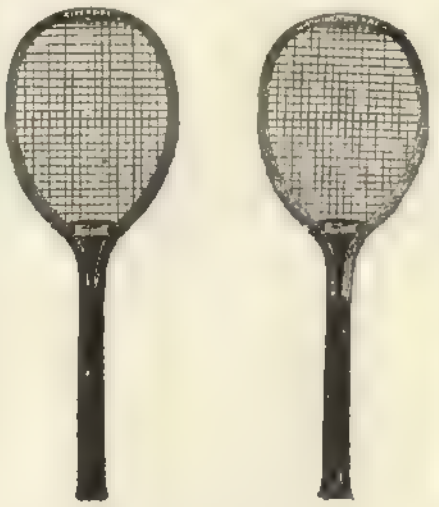
Duchess. Vantage.

Duchess—Combed handle, strung with oriental gut, narrow oval shape, full size, w't 12 to 13½ oz. each $7 00

This is a new racket combining an up-to-date narrow oval frame with a close strung center with round shaped handle

Vantage—Large size handle, strung with extra quality gut, w't 13 to 14½ oz., each [illegible] $7 50

The frame is bent on elongated oval with beveled sides and reinforced at shoulders with silk wrappings.



Riverside. Washington Park.

Riverside—Combed handle tournament strung, with imported gut, w't 12 to [illegible] 14½ oz. [illegible] each $4 50

Particular attention is given to the stringing The finish is exceptional. The balance perfect.

Washington Park—Combed handle [illegible] with oriental gut w't 12 to 14½ oz [illegible] each $3 60

These are learned for a first class racket at a moderate price.

Buckingham. Sterling.

Buckingham—Cedar handle, strung with good quality gut, w't 12 to 13½ oz. each $2.70

Well made of first class materials.

Sterling—Cedar handle, strung with good gut w't 12 to 14 oz. [illegible] each $2.20

A great racket for small beginners

Cub—Cherry handle, well finished and strung checkered, w't 11 to 13 oz. each $2 00

Well made and finished.

WHEN ORDERING TENNIS RACKETS ALWAYS GIVE THE WEIGHT.

GUN MATERIAL.

Full Size Cuts.

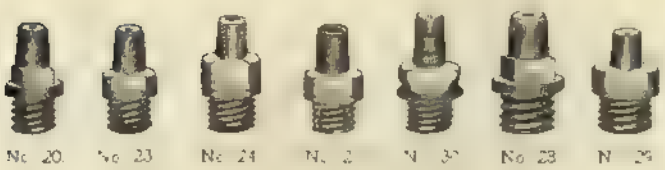
HAMMERS.

No. 208. No. 210. No. 214. No. 215. Nos. 220 and 222. Nos. 221 and 225.

Breech Loading.

No. 208—Filed, round body, right and left hand, 1⅛ in. from centers, - - - - - - - - - - per dozen $4.50
No. 210—Filed, round body, right and left hand, 1¼ in. from centers, - - - - - - - - - " 4.50
No. 214—Polished and engraved, right and left hand, 1⅛ in. from centers, - - - - - - - - " 8.00
No. 215—Lefaucheaux, filed, right and left hand, 1⅛ in. from centers, - - - - - - - - " 3.90
No. 220—English circular, filed, right and left hand, 1⅛ in. from centers, - - - - - - - - " 6.00
No. 222—1¼ in., otherwise same as No. 220, - - - - - - - - - - " 6.00
No. 221—Belgian circular, filed, right and left hand, 1⅛ in. from centers, - - - - - - - - " 5.30
No. 225—Belgian circular, filed, right and left hand, 1¼ in. from centers, - - - - - - - - " 5.30

GUN AND MUSKET TUBES.



No. 20. No. 23. No. 24. No. 2[illegible] No. 30 No. 28 No. 29

Sizes 2, 3, 4 and 5 Thread.

No. 20—Standard English, Bayliss pattern, taper - per gross $ 5.00
No. 22 Standard English, Bayliss pattern, reversed, 6.00
No. 23 Standard English, Bayliss pattern taper polished bottom, - - - - - - - - per gross 9.00
No. 24 Standard English, Bayliss pattern, reversed, polished bottom, - - - - - - per gross 9.80
No. 21 German thread, for Belgian guns - - - - - - - - - - 6.00
No. 30—Flat shoulder, Belgian thread, with washer, " 12.00
No. 28—Square shoulder musket, - - " 9.00
No. 29 Flat shoulder musket, with sporting top, for regular gun caps, - - - - - - - - per gross 12.00

In ordering state size of thread wanted.

MISCELLANEOUS.

No. 200. No. 208. No. 202. No. 203. No. 205. No. 204. No. 207.

No. 200—Nipple seats for breech loaders, - per dozen $0.90
No. 202—Nipples or spring plungers, - - " .40
No. 203 Solid head plungers, assorted - - - - - - - - - - .60
No. 204—Shouldered solid head, - - - " 1.50
No. 205—Bonehill plungers, - - - " 1.20
No. 206—Zulu plungers, - - - - - " 2.00
No. 207 New patro plungers and seats for latest style Belgian guns, - - - - - - - - per dozen 2.50
No. 208—Plunger springs, - - - " .60
No. 210—Zulu plunger springs, - - - " .50
No. 214—Revolver trigger springs - - " .80
No. 212—Revolver main springs, - - " 3.00
No. 213—Revolver main springs, - - " 3.00

NOTICE—The material listed on this page is not finished and must be fitted by a gunsmith

GUN MATERIAL.

Full Size Cuts.

SEARS.

Nos. 130 and 132.

Nos. 134 and 136.

No. 130—Right hand, filed, bar action, - per dozen $1.60
No. 132—Left hand, filed, bar action, - " 1.60
No. 134—Right hand, filed, back action, - " 1.60
No. 136—Left hand, filed, back action, - " 1.60

SEAR SPRINGS.

No. 138—Right hand, front action, - - per dozen $1.80
No. 140—Left hand, front action, - - " 1.80

TUMBLERS.

Nos. 176 and 178.

Nos. 180 and 182

No. 168

Breech Loading.

No. 176—Right hand, bar, rebounding, swivel, - per dozen $4.40
No. 178—Left hand, bar, rebounding, swivel, - " 4.40
No. 180—Right hand, back action, rebounding, swivel, " 4.40
No. 182—Left hand, back action, rebounding, swivel, " 4.40

Muzzle Loading.

No. 168—Right hand, front action, swivel, - per dozen $3.20
No. 172—Right hand, back action, swivel, - " 3.20

FLOBERT TRIGGERS AND SPRINGS.

No. 450.

No. 475.

No. 450—FLOBERT triggers, - - - - each $0.20
No. 475—FLOBERT trigger springs, - - - " .16

FLOBERT BREECH BLOCKS.

No. 610.

No. 710.

No. 610—Remington action, - - - - each $0.20
No. 710—Warnant action, old style, - - - " .60
No. 712—Warnant action, new style, light (long breech), " .60
No. 714—Warnant action, new style, heavy (long breech), " .60

FLOBERT HAMMERS.

No. 604.

No. 603—For O. S. Warnant, light barrel, - - each $0.50
No. 604—For Imp. Warnant, heavy barrel, - - " .50

FLOBERT EXTRACTORS.

No. 400.

No. 605

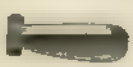
No. 400—Thumb extractors, - - - - each $0.12
No. 605—Remington action, - - - - " .12
No. 612—Warnant action, for light barrels, - - " .30

FLOBERT MAIN SPRINGS.

No. 425—Each, - - - - - - - - $0.30

FLOBERT SIGHTS AND SWIVELS.

Rear.



Swivel

No. 915—FLOBERT front sights, - - - - each $0.10
No. 920—FLOBERT rear sights, - - - - " .10
No. 930—FLOBERT hammer swivels, - - - - " .10

No. 940—Warnant action buttons, - - - each $0.10

No. 972.

No. 970.

No. 972—Warnant breech-block screw, - - each $0.10
No. 970—Fore-end screws, - - - - " .10

NOTICE.—The gun material listed on this page is not finished and must be fitted by a gunsmith.

GUN MATERIAL.

FORE-END IRONS.

No. 41—Milled, - - - - - - per dozen $9.00

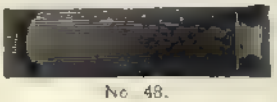
SIDE SNAP LEVERS.

No. 47½—Belgian, filed, - - - - per dozen $6.00

TOP LEVERS.

No. 49—Belgian, filed, - - - - per dozen $6.00

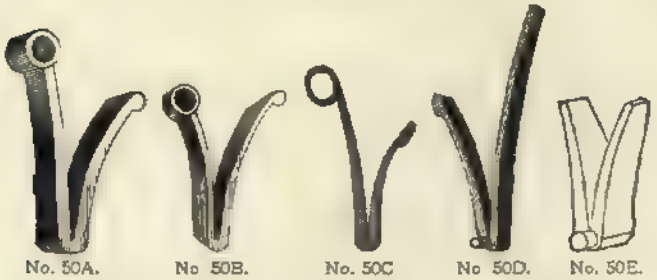
SIDE LEVER SPRINGS.



No. 48.

No. 48—English, finished and blued, - - per dozen $4.20
No. 48½—Belgian, finished and blued, - - " 2.00

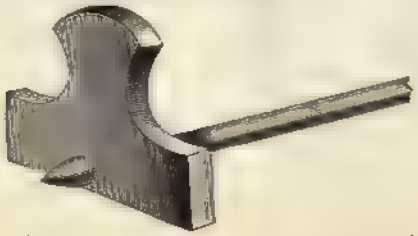
TOP LEVER SPRINGS.



No. 50A. No. 50B. No. 50C No. 50D. No. 50E.

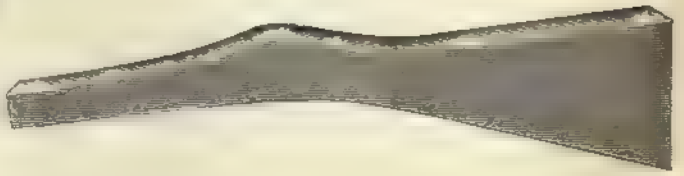
No. 50—Styles A, B, C, D and E, - - per dozen $5.00

EXTRACTORS.



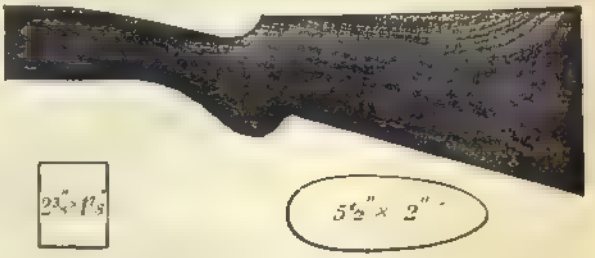
No. 51—Milled, - - - - - per dozen $4.00

GUN STOCKS.



No. 0—American walnut, for muzzle loading guns, w't 4 lbs., each, - - - - - - - - - - $0.60

TURNED GUN STOCKS.



No. E—Good quality English walnut, w't 2 lbs., - each $1.25
No. EE—Fine quality English walnut, w't 2 lbs., - - " 1.75

BUTT PLATES.

No. 100—Rubber finished, - - - - per dozen $9.00

PARTS AND REPAIRS.

All gun and rifle material listed on pages 2010 to 2013 is in the rough only and will have to be fitted by a gunsmith. We can do the work when desired, but the firearm must be sent to us in each case to be fitted. Our charges will be found on Page 1902, also information concerning repairs and care of fire-arms in general.

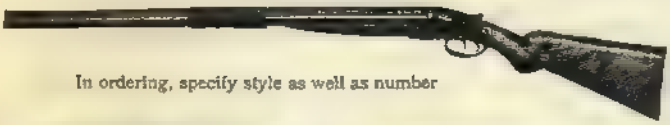
NOTICE—The gun material listed on this page is not finished and must be fitted by a gunsmith.

GUN SUNDRIES.

WAD CUTTERS.

Gauge,	8	9	10	11	12	14	16	20
Per dozen,	$3.00	3.00	1.80	1.80	1.80	1.80	1.80	1.80

HAND PROTECTORS.

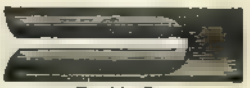


In ordering, specify style as well as number

Straight.

Medium Cut.

Extra Cut.



Double Cut

Heike's Sheet Steel, Leather Covered.

No. 112—12 gauge, length 6 in., straight, medium, extra or double cut, - - - - - - per dozen $12.00

No. 112½—12 gauge, length 9 in., medium or extra cut, per dozen, - - - - - - - - - 12.00

No. 112D—12 gauge, length 12 in., medium cut, per dozen 24.00

CHEEK PADS.

No. 97—Stiff tan leather, padded and laced, - per dozen $8 00

No. 98—Soft tan leather, padded and laced, - " 9.00

No. 93—RUDOLPH'S, extra quality saddle leather, soft finish, moose skin pad, - - - - - - per dozen $17.25

RECOIL PADS.

No. 88.

No. 90.

No. 88-2—Black rubber, for 5¼ in. stock, - per dozen $ 4.50

No. 88-3—Black rubber, for 5½ in. stock, - " 4.50

No. 88-4—Black rubber, for 5¾ in. stock, - " 4.50

No. 90-2—Red rubber, for 5¼ in. stock, - " 10.50

No. 90-3—Red rubber, for 5½ in. stock, - " 10.50

No. 90-4—Red rubber, for 5¾ in. stock, - " 10.50

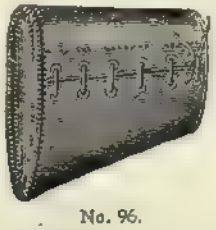
No. 91-2—Akron, sponge rubber moulded, covered with an excellent grade of smooth finished leather, laced, for 16 gauge, - - - - - - per dozen, $12.00

No. 91-3—Akron, for 12 gauge, otherwise same as No. 91-2, per dozen, - - - - - - - - - 12 00

No. 91-4—Akron for 10 gauge, otherwise same as No. 91-2, per dozen, - - - - - - - - - 12.00

No. 92—RUDOLPH'S, laced, extra quality saddle leather, 5¼, 5½ and 5¾ in. butt, - - - per dozen 15.75

No. 95.



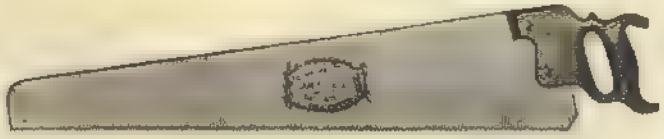
No. 96.

No. 95—SILVER'S, red rubber, on a hard rubber base, small medium and large, - - - - - - each $3.50

Can be fitted down to any size stock on an emery wheel.

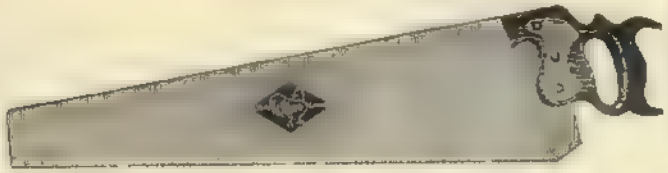
No. 96—Heavy orange laced leather, 5¼, 5½ and 5¾ in. butt, - - - - - - - - - per dozen $9 00

HAND AND RIP SAWS.



No. 50—SAM SICKLES' 26 in., hand, cast steel, beech handle, polished edge, 3 screws, 5, 6, 7, 8 and 9 points, w't per doz. 21 lbs., per dozen..... $8.00

HALF DOZEN IN A BOX.



"Cruso," 26 in., hand, cast steel, polished black walnut handle, 3 screws, raised steel plate, 5, 6, 7, 8 and 9 points, w't per doz. 21 lbs.....per dozen $10.00

HALF DOZEN IN A BOX.

No. 60—DEXTER, 26 in., combination hand, with 24 in. square and rule, straight edge, 3 screws, 6, 7, 8 and 9 points, w't per doz. 20 lbs .....per dozen $ 8 80

HALF DOZEN IN A BOX

"I Will," 26 in., *hand*, cast steel grained blade, etched, skew back, polished beech handle, 4 screws, 5, 6, 7, 8, 9 and 10 points, w't per doz. 22 lbs.....per dozen $12.00

"I Will," 28 in., *rip*, cast steel grained blade, etched, skew back, polished beech handle, 4 screws, 4½, 5, 5½ and 6 points, w't per doz. 27 lbs.....per dozen 16 00

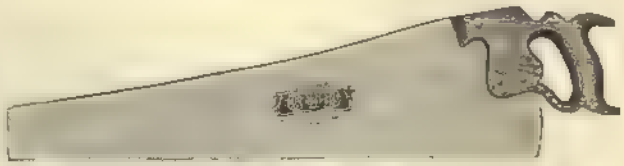
ONE-THIRD DOZEN IN A BOX.

"U. S. A.," 26 in., *hand*, finest quality blued steel blade, patent ground and tempered, polished skew back, carved and polished apple handle, 4 nickel plated raised screws, fully warranted, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 29 lbs.....per dozen $24.00

"U. S. A.," 28 in., *rip*, finest quality blued steel blade, patent ground and tempered, polished skew back, carved and polished apple handle, 4 nickel plated raised screws, fully warranted, 5, 5½ and 6 points, w't per doz. 29 lbs.....per dozen 24 00

"U. S. A.," 28 in., *rip*, 4½, 5, 5½ and 6 points, otherwise same as above, w't per doz. 33 lbs.....per dozen 28.00

ONE IN A BOX.

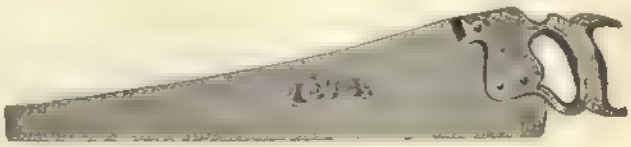


No. 82—"OUR VERY BEST," 26 in., *hand*, extra cast steel grained blade, skew back, apple handle, polished and etched, 4 plated brass screws, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 25 lbs., per dozen..... $24 00

No. 82— "OUR VERY BEST" 26 in., *rip*, extra cast steel grained blade, skew back, apple handle, polished and etched, 4 plated brass screws, 5, 5½ and 6 points, w't per doz. 23 lbs., per dozen..... 24.00

No. 82—"OUR VERY BEST," 28 in., *rip*, 4½, 5, 5½ and 6 points, otherwise same as above, w't per doz. 25 lbs.....per dozen 28.00

Ship pattern is about one inch narrower than hand, the full length of saw.



No. 82—"OUR VERY BEST," 26 in., *ship carpenters' hand*, extra cast steel grained blade, apple handle, polished and etched, 4 plated brass screws, 7, 8, 9, 10 and 12 points, w't per doz. 19 lbs. per dozen..... $24.00

ONE-THIRD DOZEN IN A BOX.

No. 17—"OUR VERY BEST," 26 in., *special hand*, extra cast steel grained blade, straight back, carved cherry handle, 4 nickel plated screws, 6, 7, 8, 9, 10 and 12 points, w't per doz. 25 lbs., per dozen..... $27 00

ONE IN A BOX

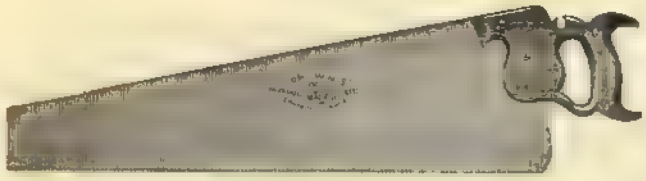
No. 18—"OUR VERY BEST," 26 in., *special hand*, extra cast steel grained blade, sway back, carved sweet mountain cherry handle, 4 brass screws, 6, 7, 8, 9, 10 and 12 points, w't per doz. 24½ lbs., per dozen..... $28 00

ONE IN A BOX.

"Rev-o-noc," 26 in., *hand*, cast steel blued blade, etched, skew back, polished beech handle, 4 screws, 6, 7, 8, 9 and 10 points, w't per doz. 24 lbs.....per dozen $15.00

ONE-THIRD DOZEN IN A BOX

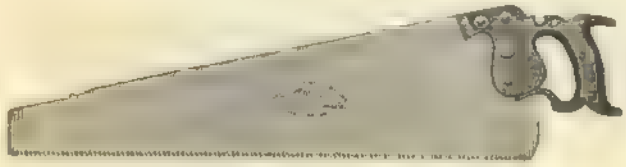
HAND AND RIP SAWS.



No. 3—26 in., BROWN'S, *hand*, grained blade, beech handle, polished edge, 4 screws, full width, 5, 6, 7, 8 and 9 points, w't per doz., 27 lbs.....per dozen $13.50

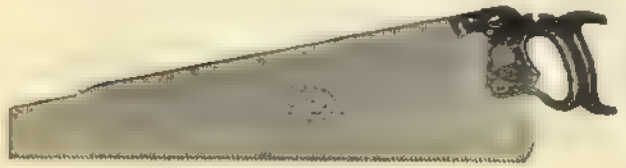
No. 3—28 in., BROWN'S, *rip*, grained blade, beech handle, polished edge 4 screws, full width, 4½, 5 and 5½ points, w't per doz 29 lbs.....per dozen 16 50

ONE-THIRD DOZEN IN A BOX.



No. 107—26 in., KEYSTONE, *hand*, cast steel, grained blade, etched, and warranted, beech handle, polished edge, 4 screws, 5, 6, 7, 8, 9 and 10 points, w't per doz. 25 lbs.....per dozen $17.50

ONE-THIRD DOZEN IN A BOX.

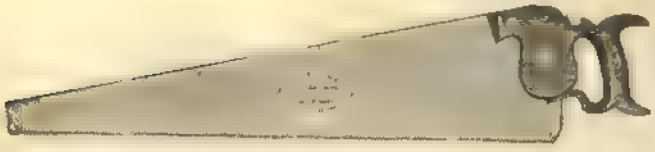


No. 7—26 in., DISSTON'S, *hand*, cast steel, grained blade, thin back, etched, beech handle, polished edge, 4 improved screws, 5, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 24 lbs.....per dozen $20.00

No. 7—28 in., DISSTON'S, *hand*, 6, 7 and 8 points, otherwise same as above, w't per doz. 30 lbs.....per dozen 23.50

No. 7—28 in., DISSTON'S, *rip*, cast steel, grained blade, etched, beech handle, polished edge, 4 improved screws, 4, 4½, 5, 5½ and 6 points, w't per doz. 30 lbs.....per dozen 23 50

ONE-THIRD DOZEN IN A BOX.



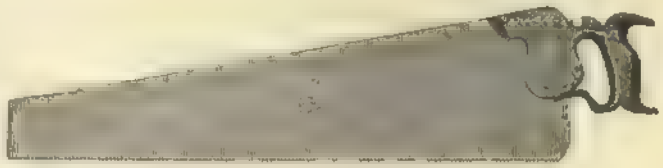
No. 7S—26 in., DISSTON'S, Ship pattern, *hand*, cast steel, grained blade, thin back, etched, beech handle, polished edge, 4 improved screws, 7, 8, 9 and 10 points, w't per doz. 24 lbs.....per dozen $20.00

ONE-THIRD DOZEN IN A BOX.

No. 7S—26 in., DISSTON'S, *hand*, cast steel, skew back, polished apple handle, 4 screws, 6, 7, 8, 9, 10 and 12 points, w't per doz. 26 lbs.....per dozen $21.00

No. 7S—28 in., DISSTON'S, *rip*, cast steel, skew back, polished apple handle, 4 screws, 4½, 5, 5½ and 6 points, w't per doz. 28 lbs., per dozen..... 24.50

ONE-THIRD DOZEN IN A BOX.



No. 8—26 in., DISSTON'S, *hand*, spring steel, grained blade, etched, apple handle, polished edge, 4 improved screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 24 lbs.. per dozen $21.50

No. 8—28 in., DISSTON'S, *rip*, spring steel, grained blade, etched, apple handle, polished edge, 4 improved screws, 4½, 5, 5½ and 6 points, w't per doz. 31 lbs.....per dozen 24.50

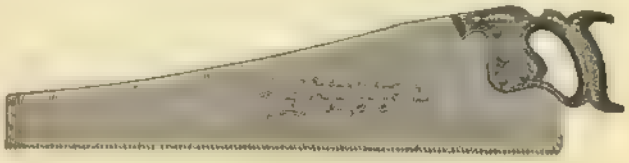
ONE-THIRD DOZEN IN A BOX

No. D8—26 in., DISSTON'S, *hand*, cast steel, grained blade, etched, skew back, apple handle, polished edge, 5 improved screws, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 24 lbs.....per dozen $22.50

No. D8—26 in., DISSTON'S, *rip*, cast steel, grained blade, skew back, apple handle, polished edge, 5 improved screws, 5, 5½ and 6 points, w't per doz. 27 lbs.....per dozen 22.50

No. D8—28 in., DISSTON'S, *rip*, 4, 4½, 5, 5½ and 6 points, otherwise same as above, w't per doz. 30 lbs.....per dozen 25.50

ONE-THIRD DOZEN IN A BOX.



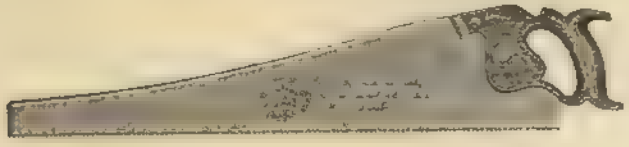
No. D100—26 in., DISSTON'S, *hand*, spring steel, patent ground and tempered blade, etched, skew back, carved apple handle, polished, 5 improved screws, 7, 8, 9, 10, 11 and 12 points, w't per doz 25 lbs.....per dozen $25 00

No. D100—28 in., DISSTON'S, *rip*, spring steel, patent ground and tempered blade, etched, graduated teeth, skew back, carved apple handle, polished 5 improved screws, 4½, 5, 5½ and 6 points, w't per doz. 29 lbs.....per dozen 28.00

ONE-THIRD DOZEN IN A BOX

HAND, RIP AND PLUMBERS' SAWS AND SAW SCREWS.

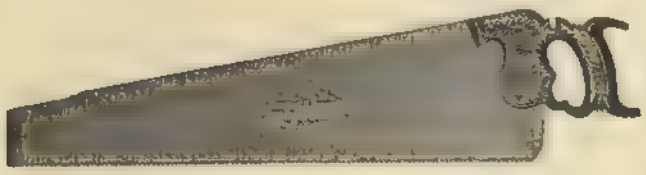
HAND AND RIP.



No. D100S—26 in., DISSTON'S, Ship pattern, *hand*, spring steel, patent ground and tempered blade, etched, skew back, carved apple handle, polished 5 improved screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 25 lbs.....per dozen $25.00

No. D100S—26 in., DISSTON'S, Ship pattern, *rip*, 5, 5½ and 6 points, otherwise same as above, w't per doz. 25 lbs.....per dozen 25 00

ONE-THIRD DOZEN IN A BOX.



No. 12—26 in., DISSTON'S, *hand*, extra refined London spring steel, selected and highly polished blade, handle carved and polished, 4 raised brass screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 26 lbs.....per dozen $30 00

No. 12—28 in., DISSTON'S, *hand*, 6, 7 and 8 points, otherwise same as above, w't per doz. 30 lbs.....per dozen 33 00

No. 12—26 in., DISSTON'S, *rip*, 5, 5½ and 6 points, otherwise same as above, w't per doz. 25 lbs.....per dozen 29 00

No. 12—28 in., DISSTON'S, *rip*, extra refined London spring steel, selected and highly polished blade, handle carved and polished, 4 raised screws, 4, 4½, 5, 5½ and 6 points, w't per doz. 31 lbs., per dozen..... 33 00

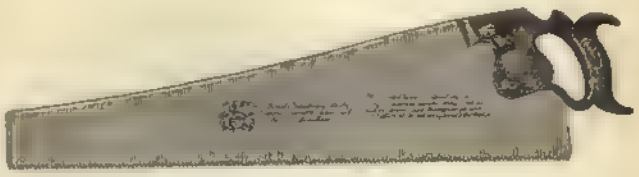
ONE-THIRD DOZEN IN A BOX.

HAND AND RIP.

No. 112—26 in., DISSTON'S, *hand*, extra refined London spring steel, selected and highly polished skew back blade, carved and polished apple handle, 4 improved brass screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 27 lbs.....per dozen $30 00

No. 112—28 in., DISSTON'S, *rip*, extra refined London spring steel, selected and highly polished skew back blade, carved and polished apple handle, 4 improved brass screws, 4½, 5, 5½ and 6 points, w't per doz. 32 lbs.....per dozen 34.00

ONE-THIRD DOZEN IN A BOX.

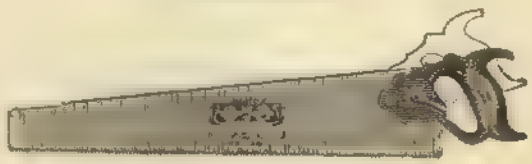


No. 120—26 in., DISSTON'S ACME, *hand*, extra London spring steel, skew back, carved and polished apple handle, 5 screws, runs entirely without set in dry seasoned lumber, 8, 9, 10, 11 and 12 points, w't per doz. 25 lbs.....per dozen $32.00

No. 120—28 in., DISSTON'S ACME, *rip*, extra London spring steel, skew back, carved and polished apple handle, 5 screws, runs entirely without set in dry seasoned lumber, 4½, 5, 5½ and 6 points, w't per doz. 27 lbs.....per dozen 36 00

ONE-THIRD DOZEN IN A BOX.

PLUMBERS'.



"OUR VERY BEST".

[illegible]—20 in., special steel blade tempered to suit purpose of sawing nails and metal without injury to teeth, can be resharpened, adjustable carved handle, nickeled trimmings, w't per doz. 11 lbs.....per dozen $16.00

This saw will prove most successful where nails are numerous and ruinous to all tools not adapted to cut them. In wood it makes a smooth cut. The handle can be adjusted to suit any pitch of blade required for the work and can be instantly fastened.

SAW SCREWS.

No. 1

No. 2.

No. 4.

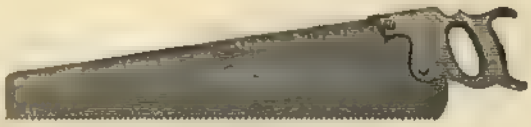
No. 5

No 6.

No. 1—Brass, diameter ⅛ in., w't per doz. ⅛ lb.....per dozen $0.42
No. 2—Brass, diameter ⅜ in., w't per doz. ¼ lb.....“ .48
No. 3—Brass, small eagle, diameter ⅜ in., w't per doz. ½ lb.....“ .70
No. 4—Brass, large eagle, diameter 1 in., w't per doz. ½ lb.....“ .[illegible]
No. 5—Brass, raised, diameter ⅜ in., w't per doz. ¼ lb.....“ .[illegible]
No. 6—Iron, raised, diameter ⅜ in., w't per doz. ⅜ lb.....“ .60

ONE DOZEN IN A BOX.

PANEL SAWS.



No. 75—22 in. ECONOMY, cast steel, etched, beech handle, 2 screws, assorted 8 to 10 points, w't per doz. 16 lbs.....per dozen $5.00
HALF DOZEN IN A BOX.

Sam Sickles', Cast Steel, Beech Handle, Polished Edge, Two Screws.

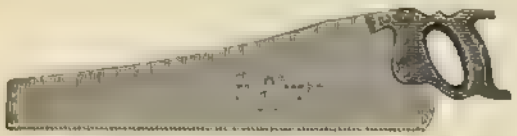
No. 50—Inches.	14	16	18	20	22
W't per doz	9	10	12	14	16 lbs
Per dozen	$4 80	5 40	5 80	6 40	6.90

8, 9, 10 AND 11 POINTS. HALF DOZEN IN A BOX.

Brown's, Grained Blade, Etched, Beech Handle, Polished Edge, Three Screws.

No. 3—Inches	18	20	22
W't per doz	13½	16	18 lbs.
Per dozen	$9 25	10.50	11 50

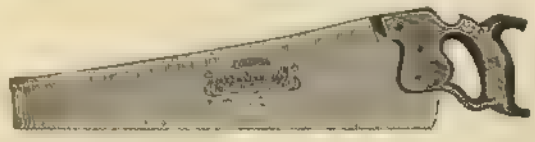
7, 8, 9, 10 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.



H. S. B. & Co's "I Will," Cast Steel Grained Blade, Etched, Skew Back, Polished Beech Handle, Three Screws.

No. 80—Inches	18	20	22
Points	8, 9, 10 and 11	8, 9, 10, 11 and 12	8, 9, 10, 11 and 12
W't per doz.	13	15	18 lbs.
Per dozen	$9.00	9.75	10 50

ONE-THIRD DOZEN IN A BOX.



"Our Very Best", Extra Cast Steel, Patent Ground, Skew Back, Carved and Polished Apple Handle, Four Plated Screws.

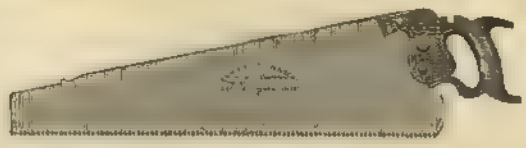
No. 82—Inches.	18	20	22	24
W't per doz	12	15	17	20 lbs.
Per dozen	$17 50	19.00	20 00	22 00

No. 82—"OUR VERY BEST," 24 in., ship pattern, 8, 9, 10 and 11 points, w't per doz. 17 lbs.....per dozen $22 00
18, 20 AND 22 IN. 8, 9, 10, 11, 12 POINTS. 24 IN. 8, 9, 10, 11 POINTS. ONE-THIRD DOZEN IN A BOX.

"U. S. A.," Finest Quality Blued Steel Blade, Patent Ground and Tempered, Polished Skew Back, Carved and Polished Apple Handle, Nickel Plated Raised Screws, Fully Warranted.

No. 100—Inches	18	20	22	24
W't per doz	14	17	20	23 lbs.
Per dozen	$19.50	21.00	22.50	24 00

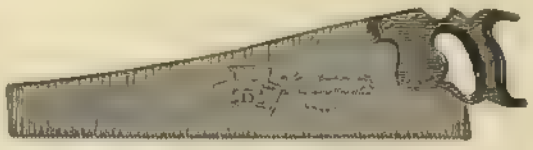
18 TO 22 IN., 8, 9, 10, 11 AND 12 POINTS. 24 IN., 9, 10, 11 AND 12 POINTS.
ONE IN A BOX



Disston's, Grained Blade, Etched, Beech Handle, Polished Edge, Three Screws.

No. 7—Inches.	16	18	20	22	24
W't per doz.	11	13	15	18	21 lbs.
Per dozen	$13.00	14.00	16.00	18.00	19.00

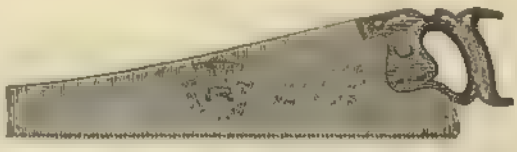
7, 8, 9 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.



Disston's, Cast Steel, Skew Back, Grained Blade and Etched, Polished Apple Handle, Four Improved Screws, Warranted.

No. D6 Inches	18	20	22	
W't per doz	12	15	18	19 lbs.
Per dozen	$16.25	18.00	20.00	21.50

8, 9, 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.

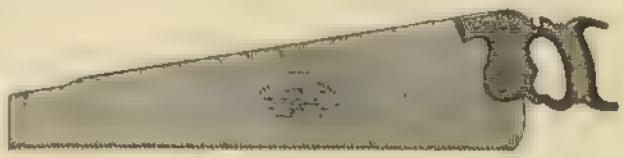


Disston's, Spring Steel, Patent Ground and Tempered, Skew Back, Polished Apple Handle, Four Improved Screws.

No. D100—Inches	18	20	22	24
W't per doz	13	16	19	21 lbs.
Per dozen	$18.25	20.00	22.00	23.50

9, 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.

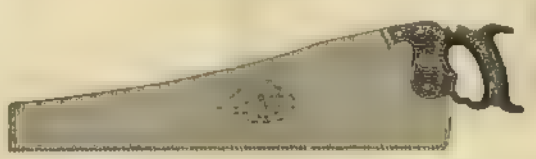
No. D100S—22 in., ship 10, 11 and 12 points, w't per doz. 16½ lbs., per dozen..... $22 00
No. D100S—24 in., ship, 10, 11 and 12 points, w't per doz. 19 lbs., per dozen..... 23 50
ONE-THIRD DOZEN IN A BOX.



Disston's, Extra London Spring Steel Blade, Selected and Highly Polished Apple Handle, Carved, Four Improved Screws.

No. 12—Inches	18	20	22	24
W't per doz	13	16	19	21 lbs.
Per dozen	$20.75	23.00	25.00	27.00

8, 9, 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.



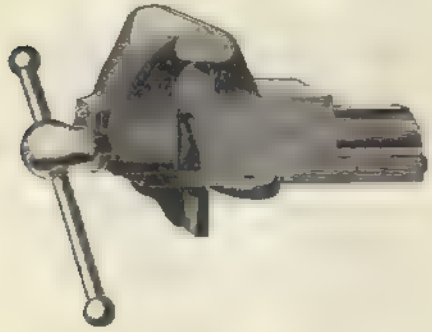
Disston's, Extra Refined London Spring Steel, Highly Polished Skew Back Blade, Selected and Polished Apple Handle, Carved.

No. 112—Inches	18	20	22	24
W't per doz.	13	16	19	21 lbs.
Per dozen	$21.75	24.00	26 00	28.00

10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.

VISES.

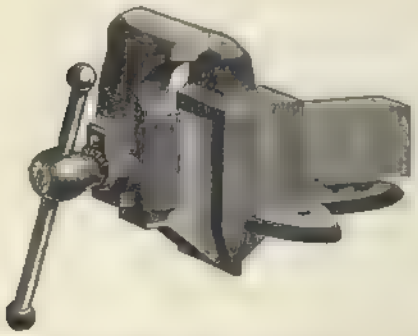
PARKER'S OVAL SLIDE.



Polished Jaws, Covered Wrought Iron Screw

Nos	30	31	32	33	34
Jaws	2 in.	3	3¼	3½	4 in.
Opens	3¼	4	4	4	4 in.
Weight	8½ lbs.	13	19	22	37 lbs.
Each	$2 70	3 30	4 20	4.50	6 00

PARKER'S PARALLEL.



Painted Green, Polished Steel Jaws, Milled and Fitted.

Nos	0000	100	200	300
Jaws	3¼ in.	3½	4½	4¾ in.
Opens	4	4½	5½	5¾ in.
Weight	23 lbs.	31½	41½	53½ lbs.
Each	$5 50	6.00	8 00	10.75

No. 0000 is the same as Nos. 100, 200 and 300 but is without the wrought iron strengtheners or cast-on Parker's patented improvements.

COLUMBIAN MACHINISTS'.

Stationary Base, Polished Steel Faces, Milled and Fitted.

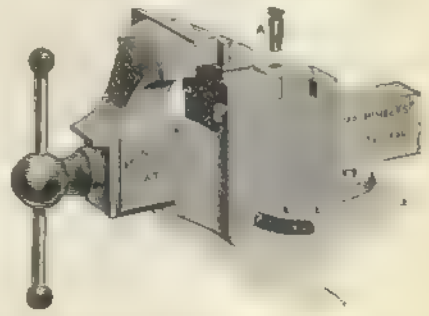
Nos	62	63	64	65	66	67
Jaws	2¼ in.	2⅝ in.	3 in.	4 in.	5 in.	6 in.
Opens	4½	5	5⅝	6½	7¼	9½ in.
Weight	32 lbs.	40	53	68	84	147 lbs.
Each	$6 00	7 00	8 50	10 00	13 00	25 00

COLUMBIAN MACHINISTS'.

Swivel Base, Polished Steel Faces, Milled and Fitted.

Nos	71	72	73	74	75
Jaws	2¼ in.	3 in.	3½ in.	4½ in.	5½ in.
Opens	4	4½	5½	6½	8½ in.
Weight	30 lbs.	40	54	80	147 lbs.
Each	$6 00	7	8 75	10 50	12 50

PRENTISS MACHINISTS'.



Stationary Base, Self-Adjusting Back Jaw, Polished Faces, Milled and Fitted.

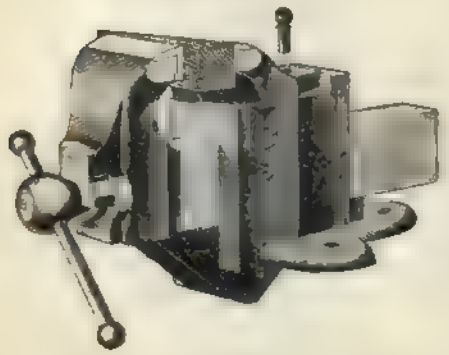
Nos	2	2½	3	4	5	6
Jaws	2½ in.	3 in.	3½ in.	4½ in.	6 in.	7 in.
Opens	4¾	5¼	6	8	9	11 in.
Weight	28 lbs.	41	54	96	146	184 lbs.
Each	$7 00	9 00	10 50	17 00	24 00	30 00

Swivel Base, Self-Adjusting Back Jaw, Polished Faces, Milled and Fitted.

Nos	19	19½	20	21	22	23
Jaws	3½ in.	4 in.	4½ in.	5 in.	6 in.	7 in.
Opens	6½	7½	8	8	9	11 in.
Weight	72 lbs.	86	96	108	168	267 lbs.
Each	$8 50	10 00	12 00	15 00	21 00	35 00

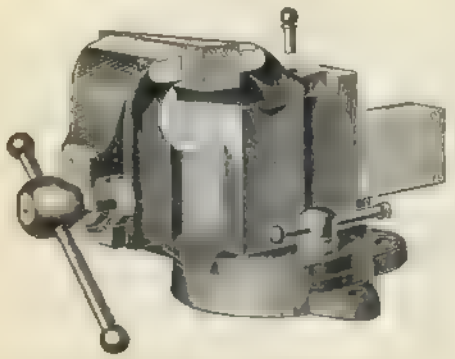
VISES.

PARKER'S VICTOR.



Stationary Base, Self-Adjusting Back Jaw, Polished Steel Faces, Milled and Fitted.

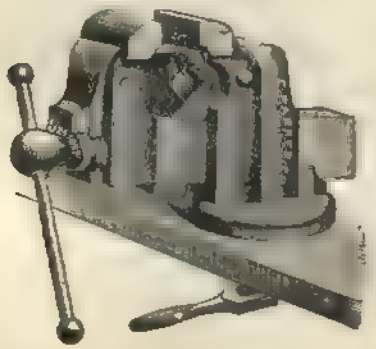
Nos.	370	371	372	373	375
Jaws	[illegible]	[illegible]	4½	5	[illegible]
Open	[illegible]	[illegible]	6	7	[illegible]
Weight	25	39	57	73	[illegible] lbs.
Each.	$6 50	7 00	10.00	14 00	24.00



Swivel Base, Self-Adjusting Back Jaw, Polished Steel Faces, Milled and Fitted.

Nos	270	271	272	273	275
Jaws	3½	3½	4½	5	[illegible]
Open	5½	5	6	7	[illegible]
Weight	30	42	60	78	[illegible] lbs.
Each	$7 00	8 50	12 50	16 00	27 00

PARKER'S COMBINATION.



Swivel Base, Polished Steel Faces, Round and Piper's Jaws, Milled and Fitted.

No. 87—3½ in. jaws, adjustable for 2 in. pipe and under, opens 4½ in., w't 41 lbs ..... each $16.00

No. 88—4½ in. jaws, adjustable for 3 in. pipe and under, opens 6½ in., w't 59 lbs..... each 20 00

COMBINATION.

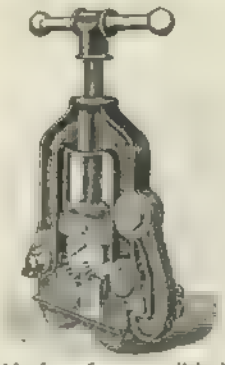
Swivel Base, Round and Piper's Jaws, Milled and Fitted.

No. 7—3½ in. jaws, opens 5 in., adjustable for 2 in. pipe and under, w't 49 lbs. ..... each $16.00

No. 8—4½ in. jaws, opens 6 in., adjustable for 2 in. pipe and under, w't 57 lbs.. ..... each 20 00

The castings entering into the construction of these vises are of a solid character and neat design, insuring strength where strength is most required

PIPE.



No. 211—REED'S malleable iron frame, polished solid tool steel milled jaws, oil hardened, self locking, all parts interchangeable for pipe ½ to 2½ in., w't 12 lbs ..... each $5 00

The quality of material and finish are points which have received particular attention. The best malleable practice also has been followed in the construction of this vise, and we unhesitatingly guarantee it to be strong and heavy.

The base has lugs on both uprights, in order that the latch may hang on either side. The change is made by taking the bolt out of the base, turning the yoke around, and then bolting the yoke to the other upright (both uprights have holes for this purpose).

DIAMOND MECHANICS'.

As a Vise for Large Work.

As a Pipe Vise

No. 14—[illegible] steel faced jaws, opens 12 in., one jaw adjustable, [illegible] screw, chilled anvil face, size not including horn [illegible] jaws and head polished and lacquered, w't 18 lbs. ..... each $5 00

Well made and has been carefully planned to aid in a wide range of work. It is a first-class pipe vise, and the adjustable jaw enables it to be used for a variety of purposes. The drill attachment is packed separately and is not furnished with the vise

Showing Drill Attached to Vise.

No. 15—Drill attachments, polished head, without drills or vise, w't 13 lbs..... each $2 70

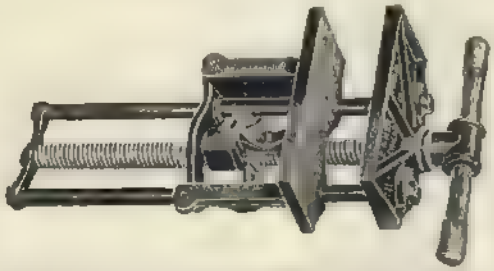
ONE IN A CASE

VISES AND ANVILS AND VISES.

WOODWORKERS' VISES.

Herriman's, Rapid Acting, Rigid Jaws, Cold Rolled Steel Guides and Screw, Extra Large Nut of Bronze, Castings of Best Gray Iron.

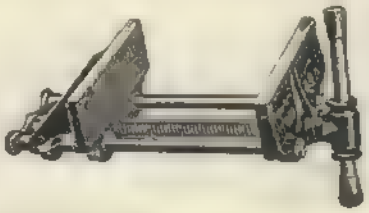
No. 17—4×7 in. jaws, opens 9 in., w't 27 lbs . . . . . each $6 00



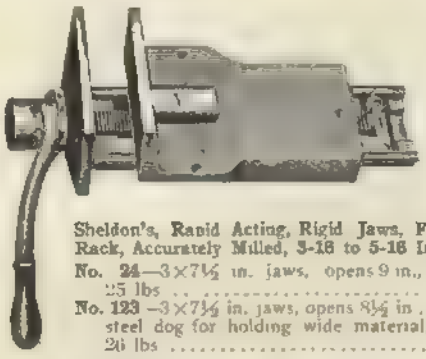
Rapid Acting, Rigid Jaws, Cold Rolled Steel Guides and Screw, Extra Large Nut of Bronze, Castings of Best Gray Iron.

No. 10—4×10 in. jaws, opens 12 in., w't 47 lbs . . . . . each $8 00

By turning the handle one quarter around the jaw can be moved forward or backward at will. One important advantage in this vise is that it gives the user continuous use of the entire length of screw if desired.



No. 220—Tower's, rapid acting, flush, 10×4 in. jaw, opens 12 in., 1¼ in. screw, w't 38 lbs. . . . . each $7.50



Sheldon's, Rapid Acting, Rigid Jaws, Forged Steel Rack, Accurately Milled, 3-16 to 5-16 Inch Thrust.

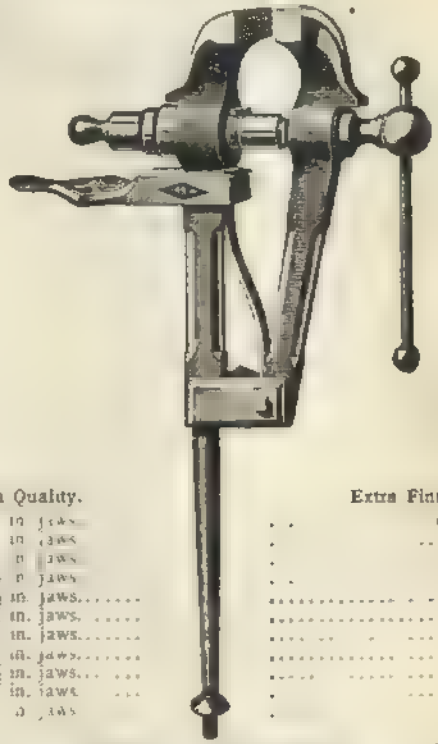
No. 24—3×7½ in. jaws, opens 9 in., w't 25 lbs . . . . . each $4 90

No. 123—3×7½ in. jaws, opens 8½ in., with steel dog for holding wide material, w't 26 lbs . . . . . each 5 10

CABINETMAKERS' VISES.

No. 4000—Parker's, 4 in. jaws, opens 8 in., ¾ in. screw, w't 38 lbs . . . . . each $10 00

SOLID BOX VISES.



Extra Quality.		Extra Finish.	
35 lbs.,	3½ in. jaws	each	$10 00
40 lbs.,	4 in. jaws	"	10 50
45 lbs.,	4½ in. jaws	"	11 00
50 lbs.,	4½ in. jaws	"	11 50
55 lbs.,	4½ in. jaws	"	12 00
60 lbs.,	4¾ in. jaws	"	13 00
65 lbs.,	5 in. jaws	"	14 00
70 lbs.,	5¼ in. jaws	"	15 00
80 lbs.,	5½ in. jaws	"	17 50
90 lbs.,	5¾ in. jaws	"	20 00
100 lbs.,	6 in. jaws	"	22 00

ANVILS AND VISES.

Austin's, Hardened Face and Jaws.

No. 03—3 in. jaws, 5 in. opening, piper's jaws, 7½×3 in. anvil face, w't 30 lbs. . . . . each $3.00

Cheney's, Self-Adjusting Back Jaw, Tempered Steel Faces, Chilled Steel Anvil, Smooth Face, Solid Steel Hardy or Cutting-Off Tool.

Nos.	120	130	140
Face	6×3	8½×3½	8½×4 in.
Jaws	3¼	3½	4¼ in.
Opens	4	5	6 in.
Weight	32	22	50 lbs.
Each	$4 50	5 50	6 50

The back jaw of the vise is self-adjusting and in use conforms by automatic action to any angle, and makes true the object held whether it be straight, beveled or wedge shaped. ONE IN A CRATE.

ANVILS, BELLOWS, ETC.

TRENTON FORGED ANVILS.

Factory Shipments.

We carry sizes 80 to 150 lbs. in stock, but can furnish larger or smaller sizes from factory when ordered in which case prices will be F. O. B. factory.

Forged in Two Pieces and Welded at the Waist, Face One Piece of Special Grade Finest Tool Steel, Tempered to Prevent Chipping.

Stock Sizes—80, 85, 90, 95, 100, 110, 125, 130, 135, 140 and 150 lbs. ..... per pound $0 18

Face perfectly shaved to an edge. Base has a large spread, thus preventing "tipping" when heavy work is being done on the point of heel or horn. Does not require "strapping down," will set firmly without shifting or rocking, and combines a most practical and graceful shape with the least amount of weight possible.

GUARANTY— Should this anvil break at the waist or its steel face become loose within a year from date of purchase, it will be replaced without charge. All claims will be referred to the manufacturers. These anvils are tempered in a manner to suit the majority of smiths. No claim for defective temper will be allowed

VULCAN CAST ANVILS.

Nos.	3	4	5	6	7
Weight (about)	30	40	50	60	70 lb
Per pound	$0 15	.13	12	.11	.10½
Nos.	8	9	10	12	15
Weight (about)	80	90	100	120	150 lbs
Per pound	$0 10	.10	10	.10	.10

The face is one solid piece of tool steel perfectly welded to the body by a patent process, and then accurately ground and tempered. The horn is covered with and at its extremity is made entirely of tough, untempered steel; body is made from a superior pig iron. The face and horn are warranted to be thoroughly welded to the body and not to separate.

BLACKSMITHS' APRONS.

Split Leather, Brass Eyelets, Leather Strings.

No. 38—28×33 in., w't per doz. 16 lbs ..... per dozen $17.00

No. 36—30×36 in., w't per doz 22 lbs..... per dozen 21 00

WELDING COMPOUNDS.

No. 1—CHERRY HEAT WELDING COMPOUND, welds iron to iron, steel to steel and malleable iron to steel and is the highest grade of welding flux, 10 lbs. in a box..... per pound $0 14

No. 1—In 5 lb. boxes..... .15

We do not break boxes.

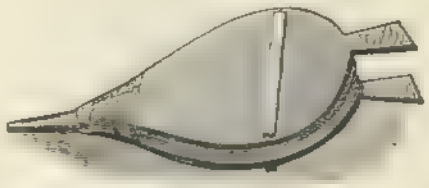
TUYERE IRONS.

No. 3—Single duck nest, length 13 in., w't 7 lbs ..... each $1 00

No. 4—Double duck nest, length 14 in., w't 11 lbs. ..... each 1.25

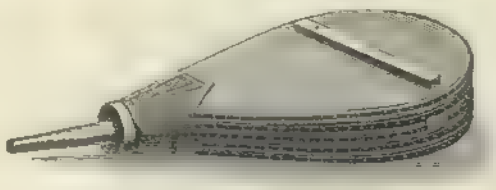
No. 3.

BELLOWS.



Hand.

No. 4—Inches.	7	8	9	10	12 (Moulders')
W't per doz.	15	18	27	36	42 lbs
Per dozen	$8 00	11 00	14 50	16 50	18 00



Blacksmith's Standard, Split Leather.

No. 100—Inches.	24	26	28	30	32
Weight	30	35	40	45	50 lbs.
Each	$10 00	11 00	12 00	13 00	14 00

No. 100—Inches	34	36	38	40
Weight	60	65	78	100 lbs.
Each	$16 00	18 00	20 00	23.00

Blacksmith's Extra Long, Split Leather.

No. 200—Inches.	32	34	36	38	40
Weight	60	75	85	110	130 lbs.
Each	$17.00	19 00	21 00	24.00	28 00

No. 200—Inches.	42	44	46	48	50
Weight	135	145	220	235	250 lbs
Each	$34 00	40 00	45.00	50 00	60 00

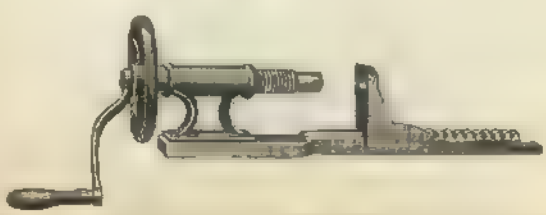
Blacksmith's Extra Long, Cowhide Leather.

No. 300—Inches.	32	34	36	38	40
Weight	60	75	85	110	130 lbs
Each	$17.00	19.00	21.00	24 00	28.00

No. 300—Inches.	42	44	46	48	50
Weight	135	145	220	235	250 lbs
Each	$34 00	40 00	45 00	50 00	60 00

The size given on the above is the width.

BLACKSMITHS' DRILLS.



No. 012 Japanned length 30 in., 1½ in. screw, ⅜ in. square hole in mandrel, w't 2½ lbs ..... each $6 00

The mandrel is fitted to take standard drills.

WALL PAPER.

For Parlors, Living Rooms, Etc.

No 285B—Design and coloring as shown above, white stock, ceiling to harmonize..... per 100 rolls $5 64

No. 286E—Design as above, colors, gray stock, pink flowers, ceiling to harmonize..... per 100 rolls 7 12

For Dining Rooms, Halls, Etc.

No. 289C—Colors, green stock, green, red and white in figure, ceiling to harmonize.....per 100 rolls $6 58

No. 289G—Colors, brown stock, green, pink and brown in figure, ceiling to harmonize..... per 100 rolls 6 58

For Dining Rooms, Halls, Etc.

No. 293B—White stock, design and coloring as shown above, ceiling to match, per 100 rolls..... $6.58

No. 293D—Design as shown above, colors, brown stock, green, black, and gray in figure, ceiling to harmonize, per 100 rolls..... 7 06

For Bed Rooms, Parlors, Etc.

No. 309D—Blue stock, design and coloring as shown above, ceiling to harmonize.....per 100 rolls $7 52

No. 309B—Design as above, colors, soft neutral flowers on cream stock, ceiling to harmonize.....per 100 rolls 7 52

For Dining Rooms, Halls, Etc.

No. 297D—Gray colored stock, white scroll, blue, pink and brown in figure, ceiling to harmonize.....per 100 rolls $7 06

No. 297E—Brown colored stock, brown scroll, red and green in figure, ceiling to harmonize.....per 100 rolls 7 06

For Libraries, Halls or Dining Rooms.

No. 307C—Green stock, design and coloring as shown above, ceiling to harmonize.....per 100 rolls $8.00

No. 307D—Design as above, brown stock, green and white in figure, ceiling to harmonize.....per 100 rolls 8.00

Prices are for one hundred SINGLE rolls. Two 8-yard rolls as 16 yards in a bolt.

ALWAYS MENTION NUMBER AND COLOR LETTER WHEN ORDERING. SEE PAGE 2460.

WALL PAPER.

No. 355D

For Bed Rooms.

No. 355D—Colored as above, special moire effect, ceiling to match, per 100 rolls $10.34

No. 355E Design as above, colors, green ground, green and white in figure, special Moire effect, ceiling to match, per 100 rolls 10.34

For Dining Rooms.

No. 319A—Colors, tan stock, bright natural colors in fruit, ceiling in light color to harmonize. . . . . per 100 rolls $8.94

No. 319D—Colors, grayish brown stock, fruit in subdued natural colors, ceiling light to harmonize. . . . . per 100 rolls 8.94

No. 379A.

For Bed Rooms, Parlors or Living Rooms.

No. 379A Design and coloring as above, ceiling to harmonize. . . . . per 100 rolls $9 40

No. 379F—Design as above, colors, gray ground, soft pink flowers, green leaves, ceiling to harmonize. . . . . per 100 rolls 9 88

No. 375EB.

Gold Embossed Paper for Parlor.

No. 375EB—Design and coloring as above, embossed ceiling to harmonize. per 100 rolls $14.10

No. 375AG—Design as above, not embossed, but has gilt soft neutral colorings ceiling to harmonize per 100 rolls 11 76

A Gilt Paper for Parlors, Dining Rooms or Living Rooms.

No. 299DG—Colors, brown stock, bright flowers, gold choke, ceiling light to harmonize. . . . . per 100 rolls $8.46

No. 299CG—Colors, green stock, bright flowers gold choke ceiling to harmonize . per 100 rolls 8 46

No. 385CG.

Independent Sidewall, no Border or Ceiling to Match.

No. 385CG—Colored as shown above, with gold on heavy stock per 100 rolls $14 58

No. 385BG—Design as above with gilt colors, brown ground white and brown flower. . . per 100 rolls 14.58

Prices are for one hundred single rolls. Two 8-yard rolls as 16 yards in a bolt.

ALWAYS MENTION NUMBER AND COLOR LETTER WHEN ORDERING. SEE PAGE 2460.

WALL PAPER.

For Kitchens.

No. 281A—White stock, blue scroll, ceiling to harmonize.....per 100 rolls $4.70

No. 281C—Green stock, green and brown in scroll, ceiling to harmonize, per 100 rolls 5.18

For Bed Rooms or Parlors.

No. 303B—White stock, bright flowers, ceiling to harmonize.....per 100 rolls $6.12

No. 303D—Green stock, bright flowers, white scroll, ceiling to harmonize, per 100 rolls..... 6.58

For Kitchens, Halls and Bathrooms.

No. 287C—Blue stock, blue and white in figure, ceiling to harmonize, per 100 rolls $6.12

No. 287E—Design as above. Made on light brown stock, brown and white in figure, ceiling to harmonize, per 100 rolls 6.12

For Parlors, Bed Rooms, Etc.

No. 313B—Gray stock, bright flowers, gray stripe, white scroll, ceiling to harmonize ..... per 100 rolls $7.52

No. 313C—Blue stock, bright flowers, white scroll, blue stripe, ceiling to harmonize..... ..per 100 rolls 7.52

For Halls, Dining Rooms, Etc.

No. 305B—White stock, bright flowers, gray choke, ceiling to match, per 100 roll $7 06

No. 305F—Light brown stock, bright flowers, ceiling to harmonize, per 100 rolls 7 52

For Small Parlors, Bed Rooms, Etc.

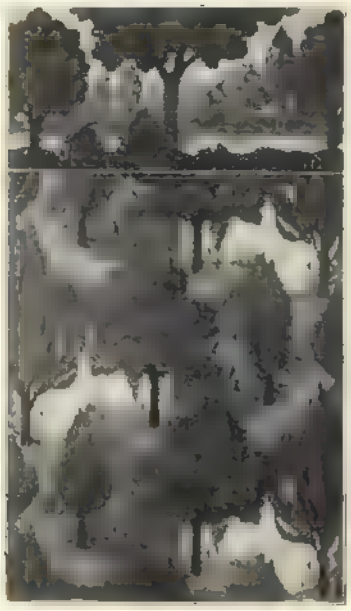
No. 291A—White stock, pink flowers, ceiling to harmonize ..... per 100 rolls $6 ..

No. 291D—Green stock flowers in natural colors, scroll in green, ceiling to harmonize.....per 100 rolls 7.06

Prices are for one hundred SINGLE rolls. Two 8-yard rolls as 16 yards in a bolt.

ALWAYS MENTION NUMBER AND COLOR LETTER WHEN ORDERING. SEE PAGE 2460.

WALL PAPER.



For Dining Rooms, Halls, etc.

No. 317A—Tan stock, green and brown in figure, small dot in overprint in black, ceiling to harmonize, per 100 rolls $8.94

No 317D—Green stock, green and brown in figure, small dot in overprint in black, ceilng to harmonize, per 100 roll's 8 94

For Dining Rooms, Halls, Etc.

No. 311B—White stock, red, green, and brown in figures, ceiling to match, per 100 rolls $7.52

No. 311E—Tan stock, brown and white in figure, ceiling to harmonize, per 100 rolls 8 00

For Bed Rooms or Small Parlors.

No. 295A—White stock, mica stripe bright flowers, ceiling to match, per 100 rolls $6.58

No. 295C—Design as above, made on green stock, mica stripe, neutral flowers, ceiling to harmonize per 100 rolls 7 06

For Halls, Libraries, and Dining Rooms.

No. 359A—Tan ground, with green in stripe, red and green in figure ceiling to harmonize.....per 100 rolls $11 28

No. 359AG—Gold stripe, red and green in figure, ceiling to harmonize, per 100 rolls 12 22

High Class Independent Sidewall Only. No Border or Ceiling.

No. 387D—Heavy stock, brown ground, brown and white in flower, splendid background print.....per 100 rolls $15.98

No. 387E—Green ground, green and white in flower.. per 100 rolls 15 98

For Parlors, Halls, Etc.

No. 381DG—Rich brown ground, white and brown in wreath, gold in flower, ceiling to harmonize.....per 100 rolls $12 22

No. 381EA—Extra heavy stock and embossed, cream ground, gray flower and wreath, and gold in flower and stripe, ceiling to match.....per 100 rolls 16.92

Prices are for one hundred single rolls. Two 8-yard rolls as 16 yards in a bolt.

ALWAYS MENTION NUMBER AND COLOR LETTER WHEN ORDERING. SEE PAGE 2460

WALL PAPER.

The following pages show a comprehensive assortment of wall papers that have been selected with great care from a very comprehensive line, and our aim in making these selections has been to offer a variety in pattern, coloring and price.

There are papers suitable for all purposes in these samples and prices range from the lowest to a moderate figure. Every number shown is a staple selling pattern and the big volume of business that we have already transacted on every paper shown is the best evidence that can be secured that they are universal big sellers.

Please note that under each pattern the pattern number and price is printed plainly and a description of the colorings in the pattern.

All of our wall papers is made in full length rolls on standard weight stock or heavier, and all will hang perfectly. The wall paper is put up in bundles containing 50 single rolls of 8 yards each, or 25 bolts. A bolt contains 2 single rolls of 8 yards each.

The correct proportion in which to order wall paper is 50 rolls of sidewall 26 rolls of ceiling and 8 rolls of two band border or 14 rolls of one band border. If a less quantity than 50 rolls of sidewall is ordered, the proportion mentioned above should be generally observed.

SPECIAL INTRODUCTORY ORDER ASSORTMENTS.

For the convenience of our customers who are willing to accept our services and knowledge as to the best selections to make up a comprehensive line of wall paper we recommend the assortments given below. Every pattern is one of our best selling numbers and all are new. Each assortment includes paper adapted for parlors, bedrooms, dining rooms, halls and kitchens.

Assortment No. 55, 1180 Rolls, $100.00.

	SIDEWALL.	CEILING.	BORDER.		
No. 281A	—50 rolls,	26 rolls,	8 dbl.	per 100 rolls	$ 4.70
No. 285B	—50 rolls,	26 rolls,	8 dbl.	"	5 64
No. 291D	—50 rolls,	26 rolls,	8 dbl.	"	7 05
No. 293B	—50 rolls,	26 rolls,	8 dbl.	"	6 58
No. 295A	—50 rolls,	26 rolls,	8 dbl.	"	6 58
No. 303B	—50 rolls,	26 rolls,	14 single.	"	6.12
No. 307C	—50 rolls,	26 rolls,	14 single.	"	8 00
No. 309D	—50 rolls,	26 rolls,	14 single.	"	7 52
No. 319A	—50 rolls,	26 rolls,	8 dbl.	"	8 94
No. 355D	—50 rolls,	26 rolls,	8 dbl.	"	10.34
No. 359A	—50 rolls,	26 rolls,	14 single.	"	11 28
No. 375AG	—50 rolls,	26 rolls,	14 single.	"	11.76
No. 381EA	—50 rolls,	26 rolls,	14 single.	"	14 10
No. 385CG	—26 rolls,	sidewall only.		"	14.58
No. 387D	—26 rolls,	sidewall only.		"	15 98

Assortment No. 55—Consisting of 1181 rolls of sidewall, ceiling and border, total $102.66.....per assortment $100.00

Assortment No. 33, 774 Rolls, $57.00.

	SIDEWALL.	CEILING.	BORDER.		
No. 281A	—50 rolls,	26 rolls,	8 dbl.	per 100 rolls	$ 4.70
No. 285B	—50 rolls,	26 rolls,	8 dbl.	"	5.64
No. 293B	—50 rolls,	26 rolls,	8 dbl.	"	6.58
No. 303B	—50 rolls,	26 rolls,	14 single.	"	6 12
No. 309D	—50 rolls,	26 rolls,	14 single.	"	7 52
No. 299DG	—50 rolls,	26 rolls,	8 dbl.	"	8 40
No. 319A	—50 rolls,	26 rolls,	8 dbl.	"	8 94
No. 379A	—50 rolls,	26 rolls,	14 single.	"	9 40
No. 355D	—50 rolls,	26 rolls,	8 dbl.	"	10.34

Assortment No. 33—Consisting of 774 rolls of sidewall, ceiling and border, total $58.24.....per assortment $57 00

Assortment No. 44, 1016 Rolls, $85.00.

	SIDEWALL.	CEILING.	BORDER.		
No. 281A	—26 rolls,	14 rolls,	4 dbl.	per 100 rolls	$ 4.70
No. 281C	—26 rolls,	14 rolls,	4 dbl.	"	5 18
No. 285E	—26 rolls,	14 rolls,	4 dbl.	"	6 12
No. 287C	—26 rolls,	14 rolls,	4 dbl.	"	6 12
No. 289C	—26 rolls,	14 rolls,	4 dbl.	"	6 58
No. 291D	—26 rolls,	14 rolls,	4 dbl.	"	7 05
No. 295C	—26 rolls,	14 rolls,	4 dbl.	"	7 05
No. 299CG	—26 rolls,	14 rolls,	4 dbl.	"	8.46
No. 303B	—26 rolls,	14 rolls,	8 single.	"	7 52
No. 305F	—26 rolls,	14 rolls,	8 single.	"	7 52
No. 307C	—26 rolls,	14 rolls,	8 single.	"	8 00
No. 309D	—26 rolls,	14 rolls,	8 single.	"	7 52
No. 311E	—26 rolls,	14 rolls,	8 single.	"	8 00
No. 313B	—26 rolls,	14 rolls,	8 single.	"	7 52
No. 317A	—26 rolls,	14 rolls,	4 dbl.	"	8 94
No. 319A	—26 rolls,	14 rolls,	4 dbl.	"	8 94
No. 355E	—26 rolls,	14 rolls,	4 dbl.	"	10 34
No. 379A	—26 rolls,	14 rolls,	8 single.	"	9 40
No. 359A	—26 rolls,	14 rolls,	8 single.	"	11 28
No. 381DG	—26 rolls,	14 rolls,	8 single.	"	12 22
No. 375EB	—26 rolls,	14 rolls,	8 single.	"	14 10
No. 385CG	—26 rolls,	sidewall only.		"	14.58
No. 387D	—26 rolls,	sidewall only.		"	15 98

Assortment No. 44—Consisting of 1016 rolls of sidewall, ceiling and border, total $86.88.....per assortment $85 00

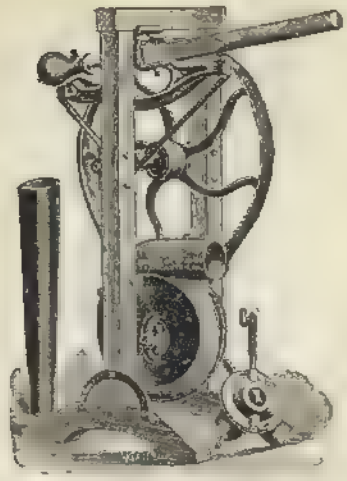
Assortment No. 22, 406 Rolls, $30.00.

	SIDEWALL.	CEILING.	BORDER.		
No. 281A	—26 rolls,	14 rolls,	4 dbl.	per 100 rolls	$ 4.70
No. 285B	—26 rolls,	14 rolls,	4 dbl.	"	5 64
No. 293B	—26 rolls,	14 rolls,	4 dbl.	"	6 58
No. 303B	—26 rolls,	14 rolls,	8 single.	"	6 12
No. 379A	—26 rolls,	14 rolls,	8 single.	"	9 40
No. 309D	—26 rolls,	14 rolls,	8 single.	"	7.52
No. 355D	—26 rolls,	14 rolls,	4 dbl.	"	10.34
No. 299DG	—26 rolls,	14 rolls,	4 dbl.	"	8.46
No. 319A	—26 rolls,	14 rolls,	4 dbl.	"	8.94

Assortment No. 22—Consisting of 408 rolls of sidewall, ceiling and border, total $30.32.....per assortment $30 00

ALL OF THE PATTERNS MENTIONED ABOVE ARE ILLUSTRATED ON THE FOLLOWING PAGE.

CHAMPION BLACKSMITHS' BLOWERS.

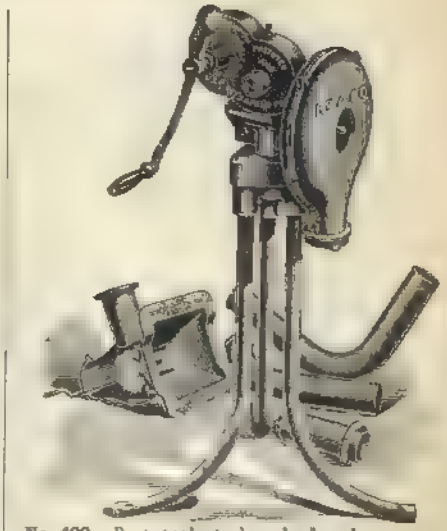


No. 1894—LEADER, hardwood frame lever motion, 16 in. fan, 28 in. fly wheel, capacity of a 50 in. bellows with patent adjustable nozzle, tuyere iron and piping, w't 125 lbs ..... each $12.00

The mechanical self-acting and simple lever motion has nothing to get out of order and is absolutely perfect in construction, durable and light running, with a continuation of momentum between strokes, keeping the blast regular and powerful

No. 1 LANCASTER, geared, crank motion, 12 in. fan, adjustable nozzle tuyere iron and piping, w't 110 lbs., each..... $20.00

A cool, light, cheap, perfect driving power. Shows at a glance whether the blast is on or off. Runs as easy one way as the other way to make the blast.

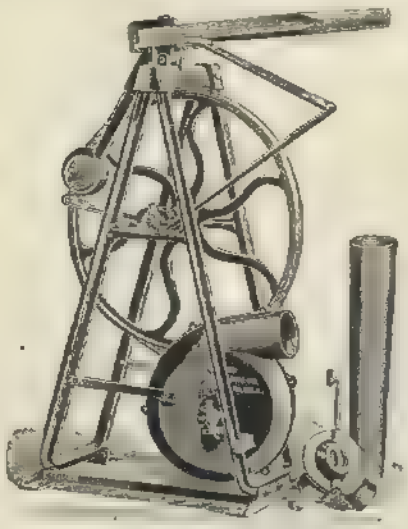


No. 400—Best tool steel and phosphor bronze working parts, highest grade tool steel adjustable ball bearings, all the turned cups and cones hardened and ground to highest possible finish, 12 in. fan, with "Whirlwind" blast, anti-clinker heavy nest tuyere iron and piping, w't 100 lbs ..... each $37.00

The No. 400 gearing is so constructed that it runs the blast at the extreme high speed necessary to produce a white heat blast without early destruction of the gearing. The spiral shaft and spiral gear are the same in size and diameter and have the same sized teeth as are used in shafts and gears running at 20,000 revolutions per minute and carrying a heavy load, while in this case with the crank at full speed does not exceed 2,000 revolutions per minute, thus making durability a certainty.

Noise and lost motion are impossible as the spiral gear in riding the spiral shaft lengthwise passes all full teeth continuously meshing into eight full teeth of the shaft

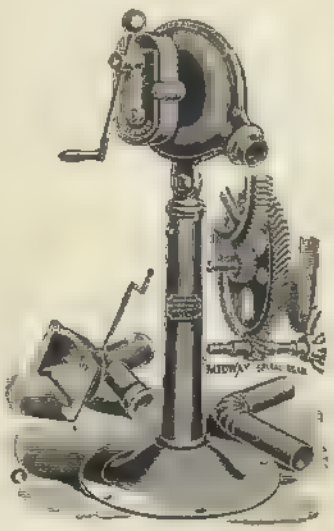
The "Whirlwind" blast anti-clinker heavy nest tuyere iron increases the output of the fire fully two hours per day, with a great saving in coal, by consuming all the heating elements in the coal. It does not blow the heat and hot air up the chimney.



No. 1898—Angle steel frame, lever motion, 16 in. fan, 26½ in. fly wheel, with tuyere iron and piping, ball joint oscillating journal bearings, w't 175 lbs. ..... each $20.00

No. 1898½—With lever and crank motion combined, otherwise same as 1898, w't 190 lbs ★ ..... each 25.00

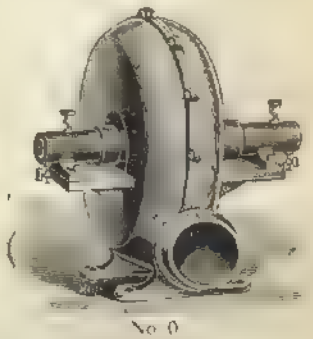
The lever motion is a very simple self-acting ratchet, no spring or anything to get out of order, having three self-acting pawls made from hardened tool steel and is practical and durable. The angle steel frame is stiff and rigid, the bent part of the steel being at the lower end where the fan is fastened and most stiffness is required. The four ends are brought together at the top, then clamped by bolts and plates substantially. The Champion patented ball-joint oscillating journal bearings used on this blower require oiling but once in six months. Will produce a welding heat on 3½ to 4 in. iron in ten minutes.



No. 70—"MIDWAY" spiral geared, crank motion, 12 in. fan, with 50 lb. center blast heavy nest ball tuyere iron and piping, w't 175 lbs..... .....each $30.00

The Champion "Midway" or cross spiral gearing is unique in construction and without an equal in gears or pinions. The gearing runs in oil in a dust proof casing, the crank turns in either direction to make the blast.

POWER BLOWERS.



No. 0
Champion.

No. 0—Will blow one fire, height 10 in., w't 75 lbs ..... each $ 8.00

No. 00—Will blow two ordinary fires, height 14 in., w't 30 lbs..... each 10.00

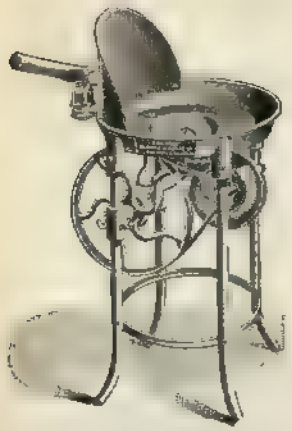
No. 000—Will blow three ordinary fires height 16½ in., w't 50 lbs..... each 12.00

Arranged for exhaust purposes..... extra 2.00

This blower is intended for blowing fires in portable and small stationary heaters, also for forge fires and various purposes where a small current of air is desired.

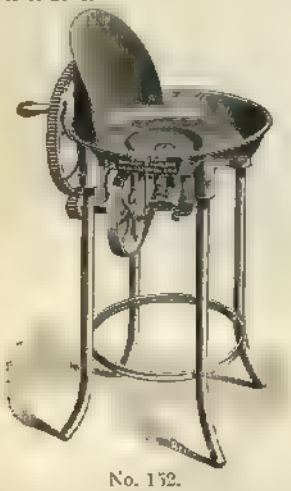
★*FOR FACTORY SHIPMENT ONLY.*

PORTABLE FORGES.



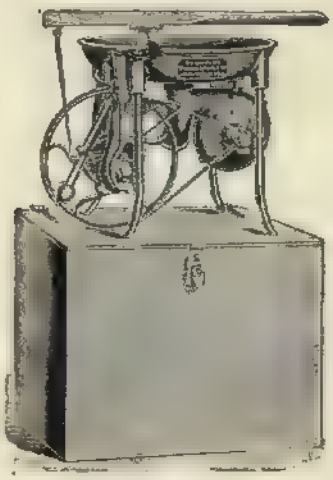
No. 150—CHAMPION, *agricultural*, lever, *with shield*, 18 in. hearth, 8 in. fan height 30 in., w't 75 lbs.....each $14 00

No. 151—CHAMPION, *agricultural*, lever, *with half hood*, 18 in hearth, 8 in. fan, height 30 in., w't 80 lbs.....each $16 00
Especially adapted for farmers or where light jobs are to be done.



No. 152.

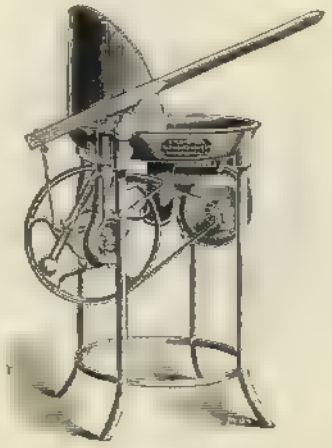
No. 152—CHAMPION, *agricultrual* crank, *with shield*, 18 in. hearth, 4 in. deep, height 30 in., 8 in. fan, w't 70 lbs. each $14 00
No. 153—CHAMPION, with half hood otherwise same as No. 152, w't 70 lbs. each..... 16 00



No. 8 —CHAMPION, standard *miners' and prospectors'* lever, patented ball joint oscillating bearings, hearth 22 in., 10 in. fan, without case, w't 100 lbs ★ each.. $23.00

No. 8½—*With case*, otherwise same as No. 8, w't 160 lbs ★.....each 26 00

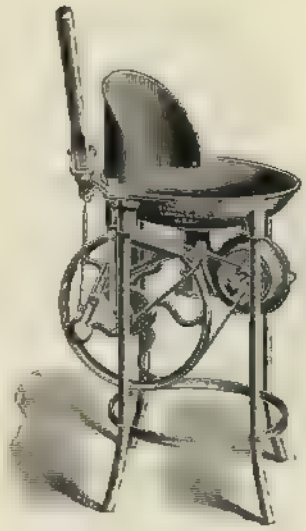
The capacity of this forge is such as to give miner and prospector entire satisfaction. It is made with short legs so that it can be placed in case, making it handy for transportation.



No. 5—CHAMPION STANDARD, lever *rivet, with shield*, patent ball joint oscillating bearings, 22 in. hearth, height 33 in., 10 in. fan, w't 110 lbs ★....each $24 00

Adapted for all kinds of light portable work.

★*FOR FACTORY SHIPMENT ONLY.*



No. 85—CHAMPION IMPERIAL, lever *rivet, with shield*, 22 in. hearth, height 33 in., 9½ in. fan, w't 100 lbs.....each $24.00

No. 87—*With full hood*, otherwise same as No 85, w't 110 lbs.★.....each 30.00

These are adapted for tempering tools, for tank and bridge builders, miners, boiler repairing, etc. No. 87 is used where combustible material is kept.

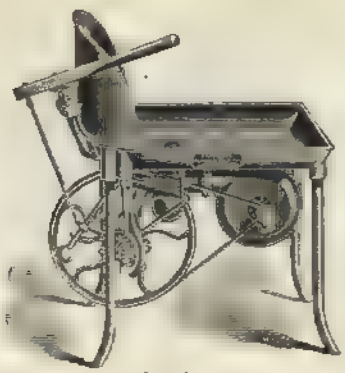
No. 05 No. 06

No. 05—AJAX, *rivet* lever, *with shield*, 22 in. hearth, height 33 in., 9½ in. fan, w't 100 lbs .....each $24.00
A strong and light forge adapted for all kinds of light portable work.

No. 06—AJAX, *toolmakers'* lever, *with half hood*, 22 in. hearth, height 33 in., 9½ in. fan, w't 105 lbs.... each $27 00

Adapted for tempering tools, for tank and bridge builders, miners and farmers.

PORTABLE FORGES.



No 2

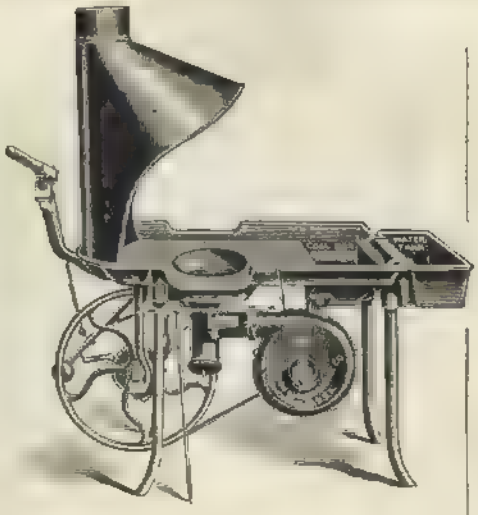
No. 2—CHAMPION, standard *boilermakers'* lever, *with shield*, ball-joint oscillating bearings, full tuyere iron, hearth 23×35 in., height 30 in., 12½ in. fan, w't 200 lbs ..... each $36 00

No. 3—*Machinists' with half hood* otherwise same as No. 2, w't 210 lbs. ★ each 40 00

No. 4—*Machinists', with full hood*, having two doors, one in front and one in rear, preventing escape of fumes, sparks and smoke, otherwise same as No. 2, w't 220 lbs ★..... ...each 42 00

These forges will produce a welding heat on 3 in. iron in five minutes.

Nos. 2 and 3 are adapted for boilermakers, tank makers, iron bridge and ship builders, plumbers, millers, manufacturers, etc., while No. 4 with full hood is used in furniture factories, saw and planing mills, oil refineries, varnish works or any place where escape of sparks, fumes, or smoke might do damage.

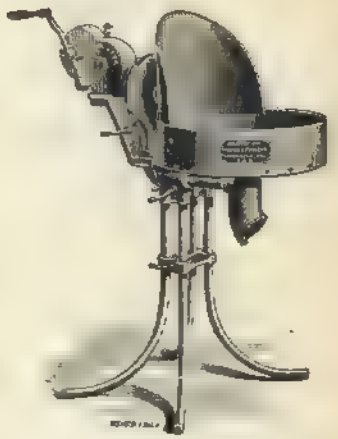


No 1

No. 1 —CHAMPION, new standard, improved, *blacksmiths'* lever, *with half hood*, patented ball joint oscillating journal bearings, slope bottom coal box, hearth 32×45 in., height 30 in., 16 in. fan, without water tank, w't 360 lbs.★.....each $50 00

No. 1½—*With water tank*, otherwise same as No. 1, w't 375 lbs.★.....each 55.00

The oil chambers hold oil for lubricating the bearings automatically six months. The sloped bottom coal box enables operator to keep the coal in a proper degree of dampness to suit all work.

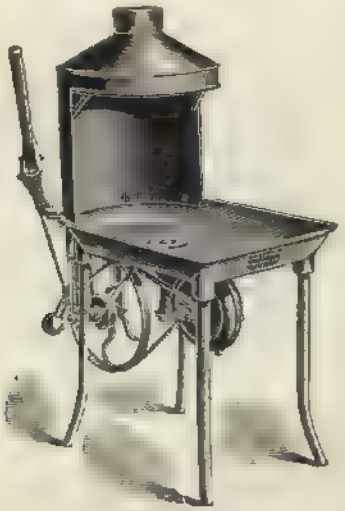


No. 401—CHAMPION, steel *rivet, with shield*, made of structural steel, adjustable ball bearings, patented high speed spiral gearings, 18 in. hearth, height 30 in , 9 in fan, w't 115 lbs., each..... $35 00

Used by railroads, bridge builders, boiler and structural iron workers

A strong, positive blast is produced by practically one-fourth the work required to produce less blast in other forges. The crank turns either way to produce blast.

Can be taken apart for transportation and set up in a few minutes.



No 83.

No. 82—CHAMPION IMPERIAL, *boilermakers'* lever *with shield*, hearth 23×35 in height 30 in., 12½ in. fan, w't 160 lbs ★ each $36 00

No. 83—CHAMPION IMPERIAL, *machinists'* lever, *with half hood*, otherwise same as No 82, w't 170 lbs .....each 40 00

The Imperial Lever Motion is a very simple device. It is a self-acting ratchet. The three ratchet dogs are made of hardened tool steel and will stand years of hard work.

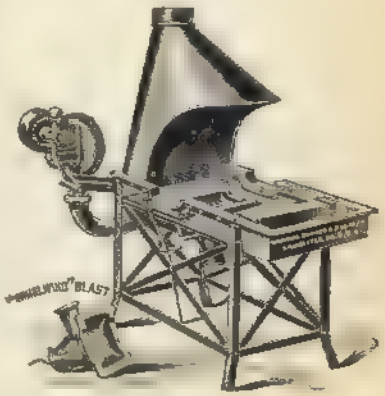
No. 82 is used by boilermakers, iron bridge and ship builders, railroad contractors, etc., and No. 83 by machinists, plumbers, millers, locksmiths, planters, and in railroad repair shops.

No. 81.

No. 81 —CHAMPION IMPERIAL, *blacksmiths'* lever, with *half hood*, hardened tool steel self-acting pawls, oil caps in all bearings, hearth 32×45 in., height 30 in., 14½ in. fan, without water tank, w't 250 lbs .....each $50 00

No. 81½ *With water tank*, otherwise same as No 81, w't 275 lbs.★....each 55.00

The fan has a direct blast into the fire and will produce a large and steady blast for heavy and all kinds of blacksmith work.



No. 408.

No. 408—CHAMPION, steel *horseshoers, with half hood*, heavy structural steel, working parts of highest grade tool steel and phosphor bronze, hearth 30×36×6 in., 12 in. fan, adjustable ball bearings, with "Whirlwind" blast anti-clinker heavy nest tuyere iron, w't 365 lbs., without water tank★ .each $65 00

No. 408½ *With water tank*, otherwise same as No. 408, w't 325 lbs.★...each 70 00

No. 409 —*Hearth 30×40×6 in.*, otherwise same as No. 408, w't 300 lbs.★ each..... 70 00

No. 409½—*Hearth 30×40×6 in., with water tank*, otherwise same as No. 408, w't 350 lbs.★ each 75 00

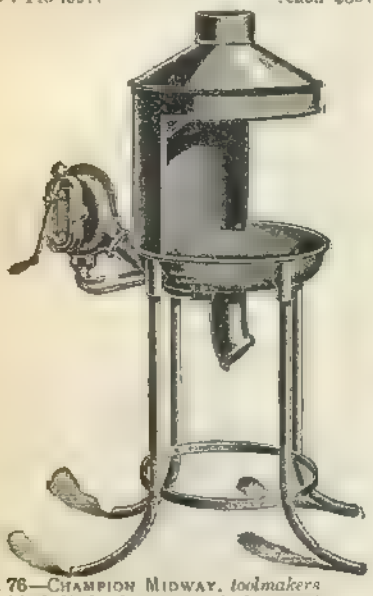
This is virtually the No. 400 Blower converted into a forge. It will make a white heat blast equal to the best power blower blast. Crank turns in either direction; it runs noiseless, smooth, easy and pleasant to the hand. It is adapted for carriage and heavy wagon work, railroad shops as well as general blacksmithing.

★*FOR FACTORY SHIPMENT ONLY.*

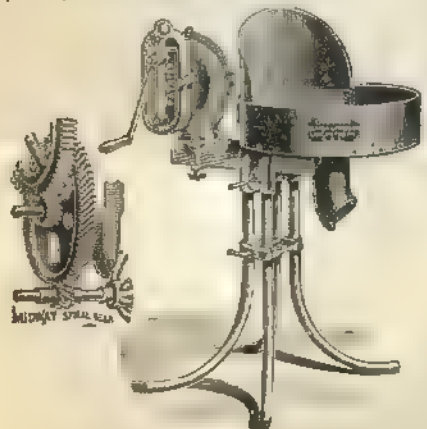
PORTABLE FORGES, TIRE BENDERS AND SHRINKERS.

PORTABLE FORGES.

No. 75—CHAMPION MIDWAY, *steel with shield*, cross spiral geared 22 in. cast iron hearth, height 33 in., 10 in. fan, w't 140 lbs.. .each $30.00



No. 76—CHAMPION MIDWAY, *toolmakers with half hood*, cross spiral geared, 22 in. cast iron hearth, height 33 in., 10 in. fan, w't 145 lbs .....each $33 00
A strong and durable forge, adapted for jewelers, bicycle repairers, tempering tools, miners, prospectors, boilermakers.



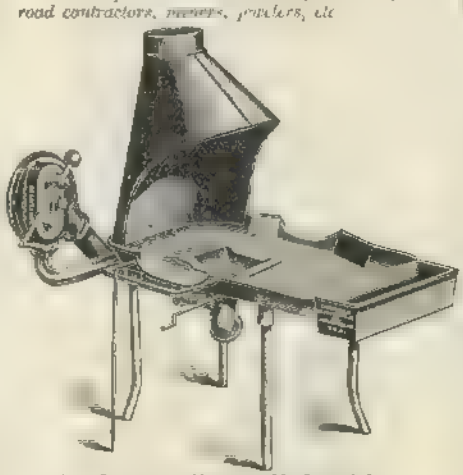
No. 78—CHAMPION MIDWAY, *steel rivet, with shield*, cross-spiral geared, 18 in hearth, height 30 in., 10 in. fan, w't 135 lbs.. .....each $30 00

PORTABLE FORGES.

No. 72

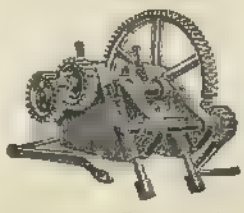
No. 72—CHAMPION MIDWAY *boilermakers', with shield*, cross spiral gearing in dust proof casing, cast iron hearth 25×45 in., height 30 in., 10 in. fan, w't 185 lbs ..... each $36 00

No. 73—*Machinists', with half hood*, otherwise same as No. 72, w't 190 lbs each 40 00
Suitable for boilermakers, bridge builders, railroad contractors, miners, jewelers, etc



No. 71—CHAMPION MIDWAY, *blacksmiths', with half hood*, cross spiral gearing in dust proof casing, cast iron hearth 32×45 in., and heavy nest tuyere iron, height 30 in., 12 in. fan, w't 300 lbs. .....each $50 00
The gearing used for producing the blast is simple in construction and without small gears or pinions. The cranks turn either direction to make blast

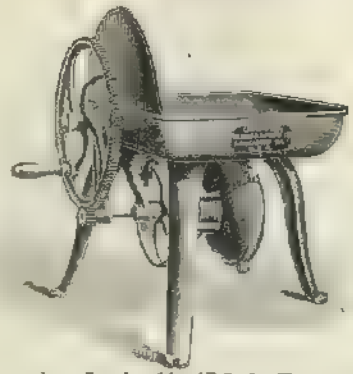
TIRE BENDERS.



No. 1—NEW STYLE EUREKA, bends 4×1 in. tire, w't 190 lbs.. . . .each $18 00
A strong and powerful tool, built with all the latest improvements. It is double back geared and worked with two cranks which are furnished with each bender; also two speeds, one for light and fast work and the other for heavy work.

★*FOR FACTORY SHIPMENT ONLY.*

BENCH FORGES.



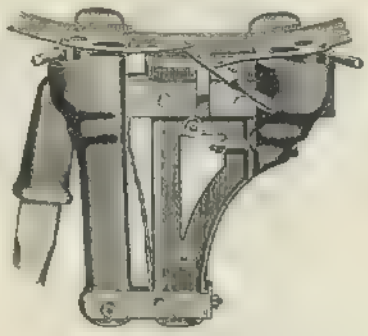
Champion, Crank, 14×17 Inch Hearth, 7 Inch Fan.

		A H
No. 21	*Without hood*, w't 75 lbs	$16 00
No. 22	*With hood*, w't 75 lbs ★	18 00
No. 23	*With full hood*, w't 80 lbs ★	20 00

These are especially intended for light work, being very compact and easily moved having short legs, so when used should be set on a box or bench. Will produce a welding heat on 1 in. iron in ten minutes. It is a very convenient forge for prospectors.

TIRE SHRINKERS.

No. 11—CHAMPION, floor space 18×10 in., shrinks tires 4×1 in., w't 140 lbs. .....each $ 2 00



No. 12—LANCASTER, jaws and cams drop forged from solid tool steel, hardened and tempered, will shrink all size tires up to a full 4×1 in., and axle up to 1½ in., w't 200 lbs....each $20 00
Constructed in the most mechanical manner and from the highest grade material. It is set on a post, making it as solid and strong as an anvil for hammering down kinks in the tire, and taking up but little space.

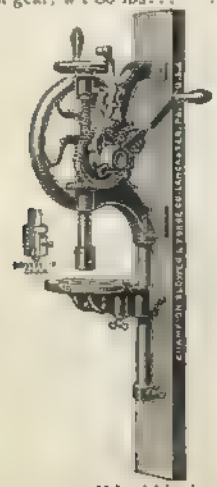
TIRE BENDERS.

No. 2—CHAMPION NEW STYLE, bends any size tire up to 3×¾ in. w't 115 lbs. .... each $11 00
The frame is cast strong and substantial, with double back gear, and worked with two cranks and two speeds.

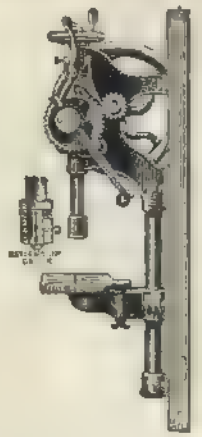
POST DRILLS.

No. 92—CHAMPION, hand feed, made of best material, bearings ground out of solid metal, ⅛ in. steel spindle bored like "Never-Slip" chuck, for ⅛ in. straight shank drills, 3 in. up-and-down run, drills to center of 12 in. circle, holes from ⅛ to ¾ in., w't 65 lbs..... each $6 00

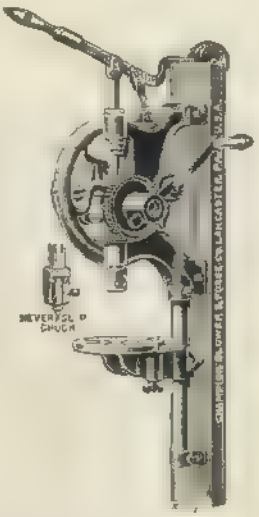
No. 101—CHAMPION, self feed blacksmiths' made of best material, bearings ground from solid metal, ⅜ in. steel spindle bored like "Never-Slip" chuck, for ½ in. straight shank drills, 3 in. up-and-down run, drills to center of 12 in. circle, holes from ⅛ to ¾ in., single speed, with back gear, w't 80 lbs... ..each $7 00



No. 98—CHAMPION, self feed blacksmiths', made of best material, bearings ground from solid metal, 1 in. steel spindle bored like "Never-Slip" chuck, for ½ in. straight shank drills, 3 in. up-and-down run, drills to center of 14 in. circle holes from ⅛ to 1 in., single speed, with back gear w't 95 lbs.....each $8 00
Extra, for power★... ..... " 3.00



No. 93½—CHAMPION, self feed blacksmiths', made of best material, bearings ground out of solid metal, 1¼ in. steel spindle bored like "Never-Slip" chuck, for ½ in. straight shank drills, 3 in. up-and-down run, drills to center of 15 in. circle, holes from ⅛ to 1¼ in., 2 speeds, full back gear w't 115 lbs., ... each $9 50
Extra, for power★. . " 3 00

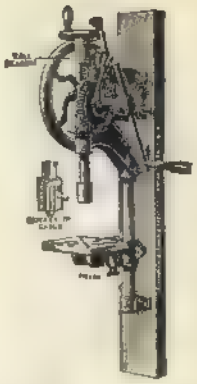


No. 100—CHAMPION, lever feed blacksmiths', made of best material bearings ground out of solid metal, steel spindle bored like "Never-Slip" chuck, for ½ in. straight shank drills, 5½ in. up-and-down run, drills to center of 14 in. circle, holes from 0 to ¾ in., with back gear, w't 100 lbs ★..... ..each $10. 00
Extra, for power★ . . . . " 3.00

This tool is designed for light and quick work, where fine drilling and counter-sinking is an object.

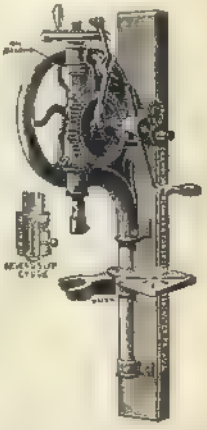
Our stock on above drills have spindles bored to take ½ in. straight shank drill bits. If specially ordered from factory, will be bored to take ⅝ or ¾ in.

★*FOR FACTORY SHIPMENT ONLY*



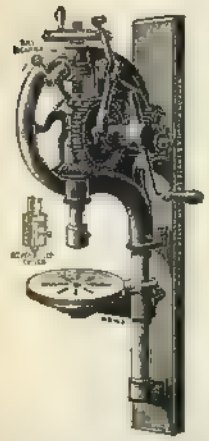
No. 95—NEW CHAMPION, ball bearing self feed blacksmiths', made of best material, bearings ground out of solid metal, tempered die steel cup and cone, 1¼ in. steel spindle bored like "Never-Slip" chuck, for ½ in. straight shank drills, 3½ in. up-and-down run, drills to center of 16 in. circle, holes from ⅛ to 1¼ in., back geared, w't 130 lbs., each..... ... ... $12 50
Extra, for power★ ... . .each 3 00

The running of the drill is greatly improved with the ball bearing It is back geared with the improved third gear principle, which gives the second speed the same crank motion as on the first speed. The third gear being part of the handle hub, it is therefore disengaged when using first speed, saving the continuous labor of pulling along an intermediate gear while using the first speed; has double journal bearings to all working parts.



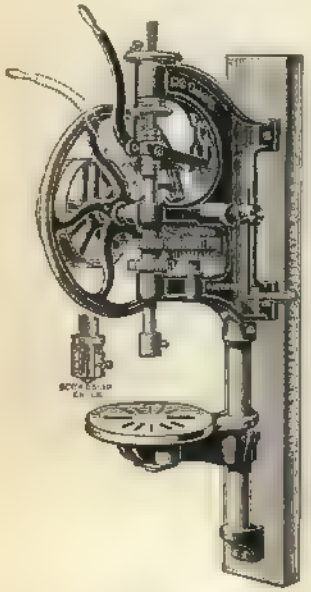
No. 4—CHAMPION, new improved upright blacksmiths', 18 in. swing, three geared, automatic self feed, 2 speeds with double journal bearings to all working parts, full back geared, with improved third gear principle (which gives the second speed the same crank motion as on the first speed), bearings all ground and polished out of solid metal, 1¼ in. steel spindle bored like "Never-Slip" chuck for ½ in. straight shank drill bits, 5 in. up-and-down run, drills to center of 18 in. circle, holes from ⅛ to 1½ in., without ball bearings, w't 200 lbs..... ...each $17.50
No. 4—CHAMPION, *ball bearing*, otherwise same as No. 4★.....each 20 00
Extra, for power★..... ..... " 3 00

POST DRILLS.

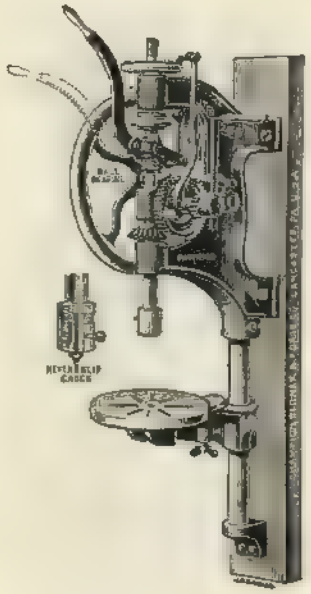


No. 5—CHAMPION, upright blacksmiths', 20 in. swing, three geared, ball bearing, automatic self feed, quick return and hand-feed handle, 2 speeds with double journal bearings to all working parts, full back geared, with improved third gear principle, bearings all ground and polished out of solid metal, 1¼ in. steel spindle bored like "Never-Slip" chuck for ½ in. straight shank drill bit, 5 in. up-and-down run, drills to center of 20 in. circle, holes from ⅛ to 1½ in., w't 240 lbs ★ . . . . . each $25 00
Extra, for power ★ . . . . . " 4 00

The Champion No. 5 has a quick-return handle, enables the mechanic to get the bit out of the work quicker and far more easily than by the use of the top or ratchet wheel. It is also very useful to feed by hand for holes up to ½ in., especially if the drill is run by power.

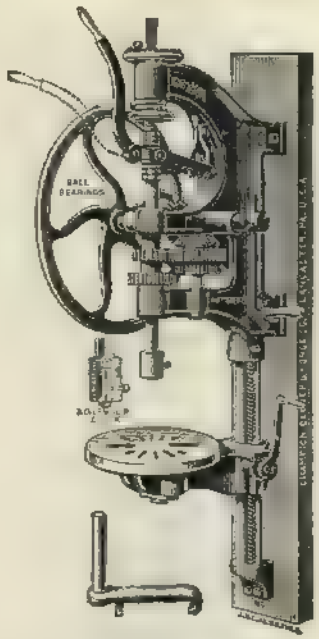


No. 200½—CHAMPION, combination automatic self and lever feed, for light and medium work, hand power, ball bearings, 1¼ in. steel spindle, bored like "Never-Slip" chuck for ½ in. straight shank drill bit, 4 in. up-and-down run, double back gear, drills from 0 to 1½ in. holes, drills to center of 18 in. circle, w't 225 lbs ★ . . . . each $30.00
Tight and Loose Pulleys, for No. 200½ can be furnished, entire shipment from factory extra ★ . . . . . each 4 00



No. 200—CHAMPION, combination automatic self and lever feed, hand-power, ball bearings, 1¼ in. steel spindle, bored like "Never-Slip" chuck for ½ in. straight shank drill bit, 4 in up-and-down run, drills to center of 16 in. circle, two speeds, drills from 0 to 1¼ in. holes, w't 160 lbs ★ . . . . . each $25 00

Tight and Loose Pulleys, for No. 200, can be furnished, entire shipment from factory, extra ★ . . . . . each 3 00

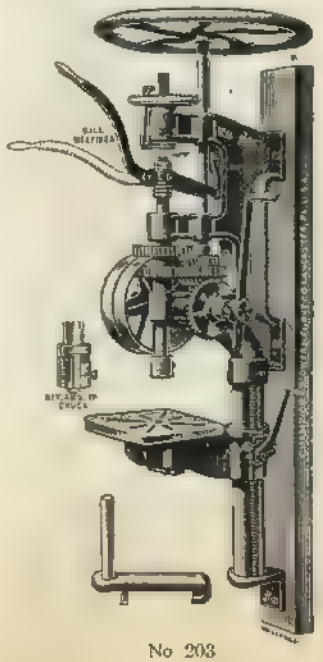


No. 201—CHAMPION combination automatic self and lever feed, for light and heavy work, hand power, ball bearings, 1¼ in. steel spindle, bored like "Never-Slip" chuck for ½ in straight shank drill bit, 5½ in. up-and-down run, double back, cut geared, drills to center of 21 in. circle, adjustable table rack, two speeds drills from 0 to 1½ in. holes, w't 325 lbs ★ . . . . . each $40.00
Tight and Loose Pulleys, for No. 201, can be furnished, entire shipment from factory, extra ★ . . . . . each 4.00

Nos. 200 to 201 are high grade drills, particularly adapted for machine, blacksmith and carriage shops The special feature of these drills is that they have the combination automatic self and lever feed. They are independent of each other and can be changed from one to the other in a fraction of a second. This improvement means a saving of time and labor at least 95 per cent by the quick return of the drill out of the work and replacing for drilling the next hole, as it obviates the necessity of turning feed screw back to get bit out of the work

They have been especially designed to meet every requirement of strictly first-class up-to-date power and hand drill. The two powers are combined and either power is always ready for operation without interfering with the other and without the slightest change of the drill. The lever feed makes them a capital wood boring machine.

Our stock on above drills have spindles bored to take ½ in. straight shank drill bits. If especially ordered from factory, will be bored to take ⅝ or ¾ in.



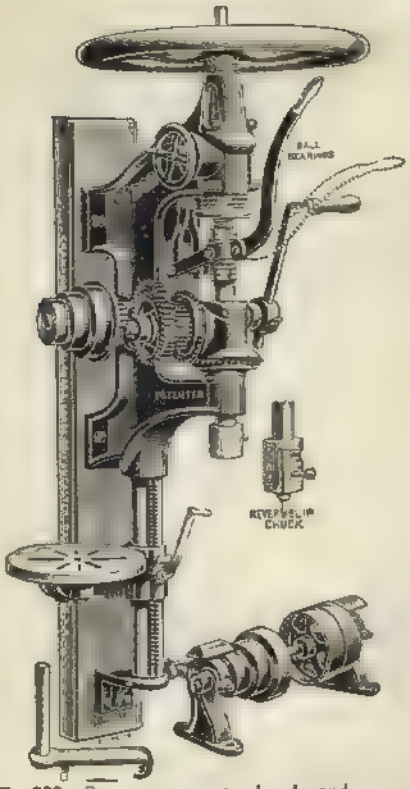
No 203

No. 203—CHAMPION, post, hand and power, combination, automatic self and lever feed, for light or heavy work, cut gears, ball bearings, 1¼ in. steel spindle, bored like "Never-Slip" chuck for ¾ in. straight shank drill bit, 5½ in. up-and-down run, double back gear, drills to center of 21 in. circle, adjustable table rack, two speeds, drills from 0 to 1½ in. holes, with 10×2½ in. tight and loose pulleys for power and hand combined, w't 340 lbs. ★ . . . . . each $54 00

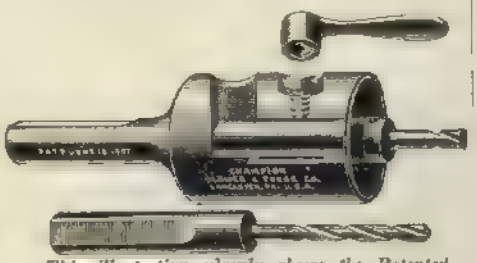
Cone Pulley and Counter Shaft, for No. 203, three speeds, can be furnished entire shipment from factory, extra ★ each 11 00

★ *FOR FACTORY SHIPMENT ONLY.*

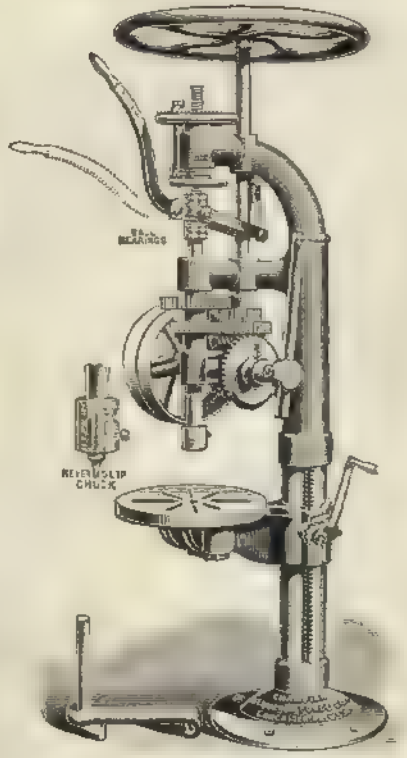
POST DRILLS.



No. 202—CHAMPION, post, hand and power, combination automatic self and lever feed, for lightest and heaviest work, cut gears, ball bearings, 1¼ in. steel spindle, bored like "Never-Slip" chuck for ⅝ in. straight shank drill bit, 6 in. up-and-down run, double back gear, drills to center of 22 in circle, adjustable table rack, three speeds, drills from 0 to 1¼ in. holes, with cone pulley and counter shaft w't 440 lbs ★ ..... each $75 00



This illustration plainly shows the Patented Champion Never Slip Drill Chuck now furnished on all Champion drills without additional charge. The invention is a square shoulder in the chuck which permanently meets the flat side milled on drill bits now regularly manufactured by drill bit manufacturers. This square shoulder takes all the strain from the set screw, as the square shoulder in the chuck in connection with the flat side of the drill bit holds the bit as firm as the combined strength of the solid metal of both the bit and chuck, and always continues to do so; in fact, makes the holding of the drill bit the strongest part of the entire drill.

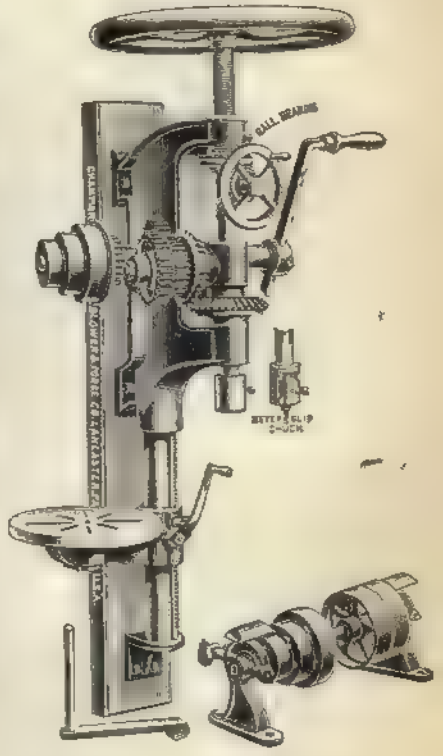


No. 203½—CHAMPION, hand and power, upright, combination automatic self and lever feed, for light and heavy work, cut gears, ball bearings, 1¼ in. steel spindle, bored like "Neve-Slip" chuck for ⅝ in straight shank drill bit, 5½ in. up-and-down run, double back gears drills to the center of 21 in circle adjustable table rack, two speeds, drills from 0 to 1½ in. holes tight and loose pulleys for power and hand combined, w't 550 lbs.★ ... each $85 00

Cone Pulley and Counter Shaft, for No 203½, three speeds, can be furnished, entire shipment from factory extra★ each..... 15 00

The CHAMPION "Patented" Never-Slip Drill Chuck, as well as the chucks on all CHAMPION Drill Spindles, comply with all the liability laws, as their is no protrusion on the outside of the Chuck to injure the operator. This has been overcome by counter-sinking the head of the set screw which is only required to keep the drill bit from dropping or pulling out while drawing the bit out of the bored hole. The set screw has absolutely nothing to do except to keep the bit from dropping or pulling out.

The Never Slip Chuck enables the drill to do truer work, it gives practically double life to the drill bit, it entirely eliminates the universal trouble known to all users of drills in holding the drill bit, and as this great invention has been placed on all Champion drills free of charge, it is worth the attention of every man who is interested in blacksmith drills



No. 25—CHAMPION, new back-geared and cut-geared, automatic self feed, ball bearing, drills to center of 22 in. circle, with three-step cone pulley and countershaft, complete for power and hand, spindle bored like "Never-Slip" chuck for ⅝ in. straight shank drill bits, 6½ in up-and-down run, w't 440 lbs.★ each..... $55.00

No. 25—CHAMPION, with tight and loose pulleys, complete for power and hand, w't 350 lbs.★ ..... each 44 00

No. 25—CHAMPION, for hand only, w't 325 lbs.★ ..... each 40 00

The independent countershaft, with three-step cone pulley to give the drill different speeds, is a feature of great importance and advantage for a power drill. It is made with cut gears and with ball bearings only. The rack for raising or lowering the table is very convenient, very quick in action and very easy to work. The table always remains where it is stopped. It will not stick and throw the drill and table out of line. The table can be turned from under the drill spindle and out o the road precisely the same as if no rack was there. It has a large, round lathe-turned and slotted table making it very convenient for bolting the work on.

The Champion No 25 new back-geared automatic self-feed post drill is a perfect single or double-back-geared drill, which can be changed from one to the other in an instant by the slightest movement of the hand. The back-geared principle on this drill is very powerful. The gears turn or revolve in the same direction that the crank is turned. The transmission of the power by the bevel gears direct to the drill spindle is as close to the drill as it can be built, which is a great feature in a drill to make it run light and give power, as transmitting the power too far from the drill bit acts precisely like hitching a horse too far from the buggy.

These are high grade drills, particularly adapted for blacksmith, carriage and machine shops The special feature of these drills is that they have the combination automatic self and lever feed. They are independent of each other, and can be changed from one to the other in a fraction of a second. This improvement means a saving of time and labor at least 95 per cent, by the quick return of the drill out of the work and replacing for drilling the next hole, as it obviates the necessity of turning feed screw back to get the drill bit out of the work.

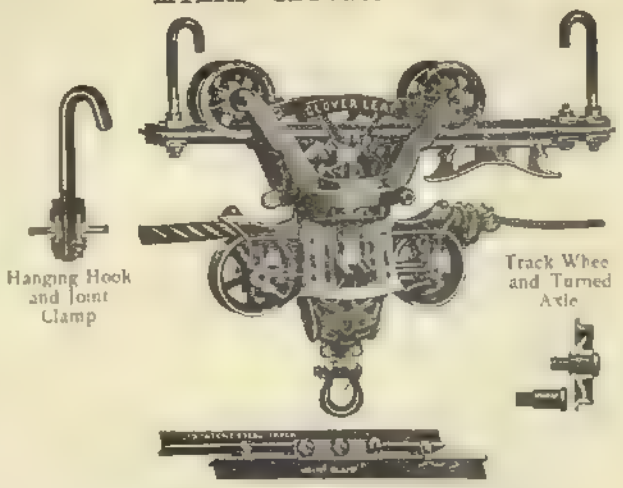
They have been especially designed to meet every requirement of strictly first-class up-to-date power and hand drill. The two powers are combined and either power is always ready for operation without interfering with the other, and without the slightest change of the drill The lever feed makes them a capital wood-boring machine.

Our stock on above drills have spindles bored to take ⅝ in straight shank drill bits If specially ordered from factory will be bored to take ½ in and ¾ in

★ *FOR FACTORY SHIPMENT ONLY*

HAY CARRIERS.

MYERS' CLOVER LEAF.



Double Steel Track with Splicing Clamp

No. 1031—Hay Carriers, for double steel track, malleable iron, aluminum finish, ⅞ in. turned steel axles, swivel and reversible, w't 27 lbs. ..... each $7 00
No. 1032—Hay Carriers, adapted for wood track, otherwise same as No 1031, w't 32 lbs ..... each 7 00
No. 644—Double Steel Track, with splicing clamps, in lengths of 6 or 12 ft., w't per foot 2 lbs ..... per foot .20
No. 302—Hanging Hooks, 6 in. (measured after bending), with clamp, w't per doz 8 lbs. ..... per dozen 1 40
No. 824—Extra Splicing Clamps, w't per doz. 14 lbs. ..... " 2 50

This combination machine (both swivel and reversible) can be reversed by drawing the rope through from end to end or by turning the swivel

It is constructed with flanged wheels revolving on ⅞-inch turned steel bearings. The lock is composed of three parts and has no springs The carrier has a large, flaring mouth to receive the fork pulley The fork pulley can swing backward or forward without becoming detached This swinging fork pulley is a decided advantage when used for filling a mow above the beams, as it relieves all side strain from the car

AN AVERAGE OUTFIT CONSISTS OF ONE CARRIER, 50 FT. OF TRACK WITH JOINT CLAMPS, TWENTY-FIVE HANGING HOOKS, TWENTY-FIVE RAFTER BRACKETS, FIVE "PASS KNOT" PULLEYS AND TWO FLOOR HOOKS. ADAPTED FOR ¾ TO ⅞ IN. ROPE. WHICH IS NOT FURNISHED WITH THE CARRIER

Double Steel Track, Put Together Before Shipping.

All Double Steel Track is put together as shown in illustration before shipping. The advantage of this plan is that in erecting the only thing necessary is to attach the splice clamps. Instead of old method of breaking joints in center of rail, a long, heavy clamp is used. This plan is recommended, as it adds all the advantages of the single rail, and makes the double rail more desirable for dealers to handle.

How Track Should be Placed.

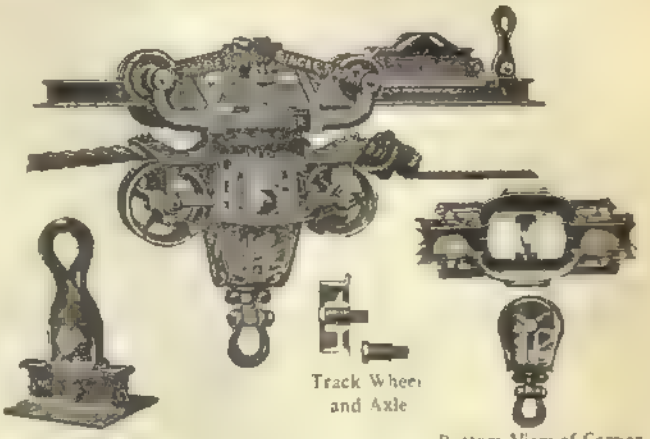
Showing how track should be put up and how rope is tied from one rafter to the other close under the track to make stop for carrier at end of barn. Also shows how rafter brackets are placed, and how pulley should be fastened

Directions for Erecting Myers' Patent Steel Track.

Scaffold by placing rope from rafter to rafter, say 6 ft. from ridge pole or peak and about 10 ft. apart. Then place extension ladder across the ropes with board to stand on. Now nail one rafter bracket at each end of barn and draw a line from one end to the other and stretch tight. Then nail all rafter brackets even with this line. You are now ready to put up the track, which can be done either in sections or by clamping the entire length together. Hoist near to rafter brackets by ropes. Then place hanging hook over rafter bracket and finish by putting in bolt.

MATERIAL REQUIRED—One reversible carrier; track the required length of barn; one hanging-hook and rafter bracket for each rafter; five malleable knot passing pulleys; one fork; two floor hooks, one rope hitch; enough ¾ or ⅞ in. rope to operate the carrier (usually takes from 125 to 100 ft., but depends upon length of barn); ¾ in. reverse rope the length of track; trip rope required length.

MYERS' IMPERIAL, STEEL TRACK.



No 1038—Hay Carriers, for single steel track, malleable iron, aluminum finish, ⅞ in turned steel axles, swivel and reversible, w't 32 lbs. ..... each $7 00
No. 518—Steel Track, with splicing blocks, lengths of 6 or 12 ft., w't per foot 2 lbs. ..... per foot .20
No. 517—Extra Splicing Clamps, w't per doz. 16 lbs. ..... per dozen 2 50
No. 519—Hanging Hooks, two pieces bolted, easily removed, w't per doz. 5 lbs. ..... per dozen 1 40
No. 301—Malleable Rafter Brackets, w't per doz. 3 lbs. ..... " 60

The Imperial Single Rail Carrier is heavy and substantially built. Has wide mouth to receive the fork pulley when approaching from any direction. The track wheels revolve on seven-eighths inch steel axle. The rope sheaves have extra long hub. The locking device is composed of three pieces, and is so arranged as to grasp the fork pulley on both sides of the frame

The track is an eye beam 1¼ inch deep with 2⅛ inch flange at bottom, which forms the tread for the carrier The knocker or stop block and hanging hooks are each composed of two pieces, held by bolts which form friction clamp, and are adjustable to any point desired

AN AVERAGE OUTFIT CONSISTS OF ONE CARRIER, 50 FT. OF TRACK WITH JOINT CLAMPS, TWENTY-FIVE HANGING HOOKS, TWENTY-FIVE RAFTER BRACKETS, FIVE "PASS KNOT" PULLEYS AND TWO FLOOR HOOKS. ADAPTED FOR ¾ TO ⅞ IN. ROPE, WHICH IS NOT FURNISHED WITH THE CARRIER.

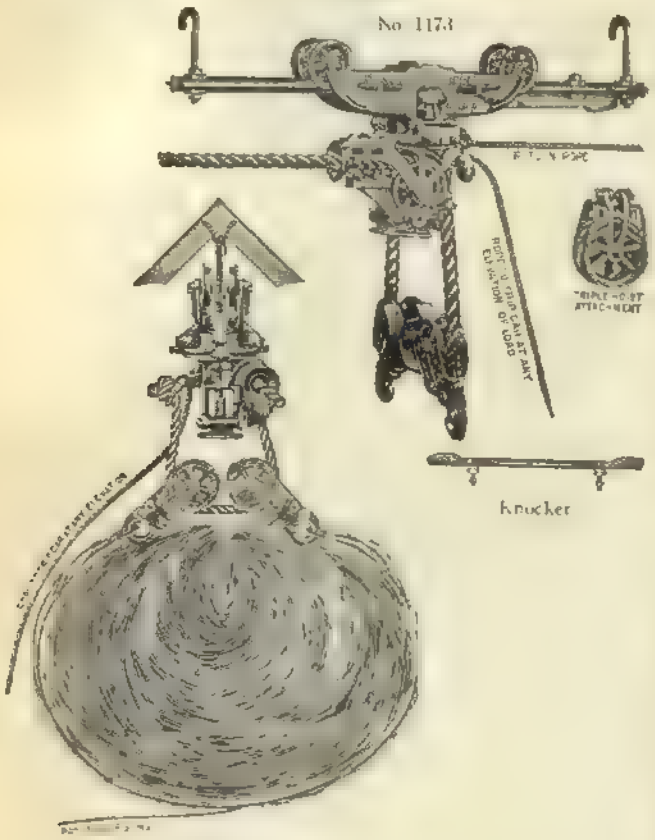
Each carrier is supplied with end stops to prevent carrier from running off track

Directions for Reversing Carrier.

Set fork in hay. Tie ends of rope together, to which horse and weight are attached. Pull on small rope until knot comes to the floor, then untie ropes. Fasten weight on small rope, change pulley to floor hook This reverses carrier for opposite direction without leaving the floor or climbing up. Use all knot passing pulleys. For taking in hay at end of barn use V-shaped brace for track support, as shown in cut.

HAY CARRIERS.

MYERS' RIGHT ANGLE FORK AND SLING ELEVATORS.



In Operation

With Two Sure Grip Pulley Blocks, 7/8 in. Turned Steel Bearing, Double or Triple Hoist.

No. 1173—Sling Carriers, for double steel track annealed malleable iron, improved rope lock and locking device, w't 52 lbs., each $12 00

No. 1175—Sling Carriers, for wood track, otherwise same as No. 1173, w't 55 lbs. ..... each 12 00

No. 644—Double Steel Track, with joint clamps, in lengths of 6 or 12 ft., w't per foot 2⅜ lbs. ..... per foot .20

No. 302—6 in Hanging Hooks, with clamp (measured after bending), w't per doz. 8 lbs.... ..... per dozen 1.40

No. 624—Extra Joint Clamps, w't per doz. 14 lbs..... " 2.50

The Myers right angle fork and sling elevator, made entirely of malleable iron, with a track operating on an 18 inch wheel base, is very heavy and of sufficient strength to withstand the ordinary usage to which such machines are subjected. The machine is so arranged that IT ELEVATES THE LOAD AT RIGHT ANGLES WITH THE TRACK, WITH THE RESULT THAT WHEN THE LOAD IS DISCHARGED IN THE MOW, IT LIES PARALLEL WITH THE LOAD ON THE WAGON, a feature not accomplished by sling carriers, unless they use special right angle pulleys which add at least one half horse power to the draft

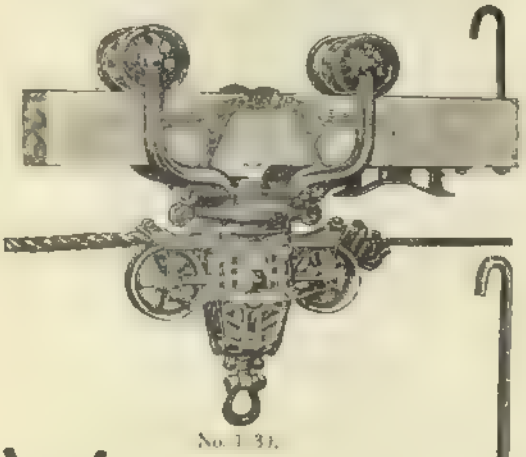
The ordinary sling carrier is constructed to hold a certain weight of load. If, by chance, the operator overloads the carrier, the result is that the rope slips through the lock, causing it to wear. This has been entirely overcome on the right angle fork and sling elevator, as it is so arranged that the tension of the rope lock IS REGULATED ENTIRELY BY THE WEIGHT OF THE LOAD. In other words, the heavier the load, the greater the tension on the rope lock. The result is that it is impossible for the rope to slip through the lock; hence NO CHAFING OF THE ROPE. THE LOCK ADJUSTS ITSELF TO ANY SIZED ROPE, ¾ TO 1 INCH.

The right angle fork and sling elevator operates automatically, and is tripped by the sling pulley striking a plate immediately under the carrier. IT IS ALSO ARRANGED WITH A SEPARATE TRIP ROPE, BY THE USE OF WHICH THE LOAD MAY BE CARRIED INTO THE MOW AT ANY ELEVATION DESIRED WITHOUT DRAWING ENTIRELY TO THE TOP OF THE BARN.

This is a great advantage when used in modern barns, without cross beams, as the load may be elevated to the height necessary to pass in to the mow, and not to the top of the barn.

The right angle fork and sling elevator is adapted to be used in connection with slings, or with one or two ordinary hay forks as desired. Many farmers prefer to use two forks, one attached to each pulley. This arrangement enables them to take at least twice the load that could possibly be taken by an ordinary fork carrier.

MYERS' IMPERIAL—WOOD TRACK.



No. 1039—Hay Carriers, for single wood track, malleable iron aluminum finish, ⅜ in. turned steel axles, swivel and reversible w't 25 lbs... ..... each $7 00

No. 267—Hanging Hooks, ⅜×10 in. (measured after bending), w't per doz. 9 lbs..... per dozen 1 00

No. 283—Hanging Hooks, ⅜×14 in. (measured after bending), w't per doz. 12 lbs... ..... per dozen 1 20

No. 301—Malleable Rafter Brackets w't per doz 3 lbs. " .60

This carrier is identical in construction throughout with the steel track carrier, with the exception of the size of track. It is adapted for [illegible] track.

AN AVERAGE OUTFIT CONSISTS OF ONE CARRIER, TWELVE HANGING HOOKS, TWELVE RAFTER BRACKETS, FIVE PASS ROPE PULLEYS AND TWO FLOOR HOOKS.

Directions for Making Wood Track.

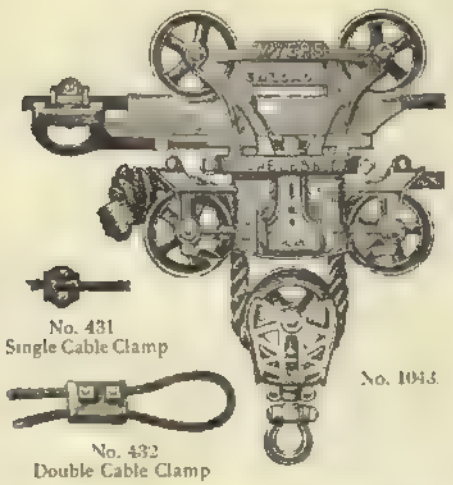
The track may be hardwood or pine scantling, 4×4, dressed to about 3¾ in. width. If not convenient to get this size for the full length, 4×2 or 4×3 may be used by nailing a piece on where the stop is placed, so as to fit the carrier and operate the lock properly. The pulley used to pull the carrier back in mow should be directly under and in line with the track. Always put an extra hook over the load near the stop.

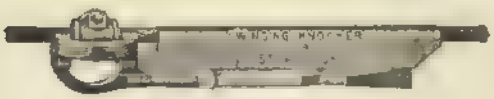
All Myers' hay carriers are made of malleable iron throughout. They are constructed with flanged wheels revolving on ⅞ inch turned steel bearings. The carriers have a large flaring mouth to receive the fork pulley when approaching from any direction. The swinging fork pulley is a decided advantage in drawing hay into a well filled mow or over a beam.

The locking device is composed of three pieces and is so arranged as to grasp the fork on both sides of the frame.

HAY CARRIERS AND PULLEYS.

MYERS' CABLE OR ROD HAY CARRIERS.





Showing an Enlarged View of the Swinging Knocker or Stop Block as Used on the Cable Carrier

No. 1043—Hay carriers for cable or rod track, malleable iron, aluminum finish, with ⅞ in. turned steel axles, w't 31 lbs. ..each $7.00

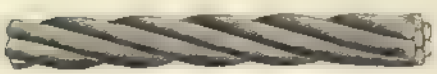
No. 431—Single cable clamps, 2 pieces, bolted, easily removed w't per doz. 9 lbs..... per dozen 2.75

No. 432—Double cable clamps, 2 pieces, bolted, w't per doz. 15 lbs. . per dozen 3.75

The knocker is one of the special features of this machine. It is so arranged that, when [illegible] rock and stand immediately under each [illegible] ces. It is held [illegible] by [illegible] sleeve is also [illegible] Some method for fastening down the [illegible] desired point on the cable by means of an ordinary cable clamp

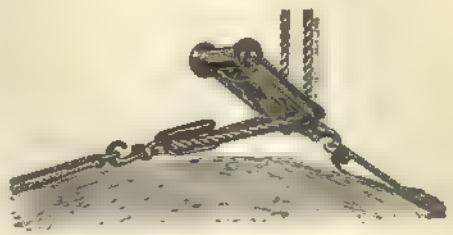
AN EXTRA OUTFIT CONSISTS OF ONE CABLE CARRIER, ONE HAY FORK 150 FT. ½ IN. GALVANIZED CABLE, TWO SINGLE CABLE CLAMPS, TWO DOUBLE CABLE CLAMPS, TWO ⅝×10 IN. CARRIAGE BOLTS FOR SECURING POLES TOGETHER, 130 FT. ¾ IN. MANILA ROPE, TWO PULLEYS AND FOUR POLES 4×4 IN. ×30 FT. LONG.

Cable.

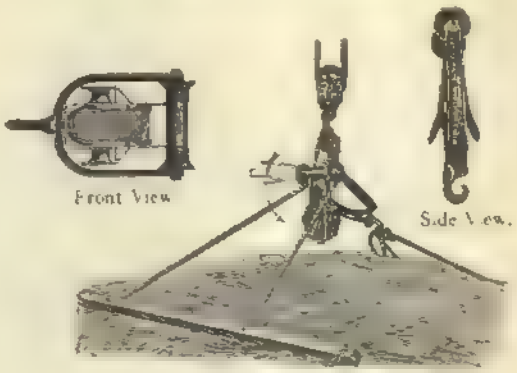


Cable, ½ in. 7 strand, galvanized, w't per ft. ½ lb.....per foot $0 05

SLING PULLEYS.



Showing Pulley with Fork Approaching.



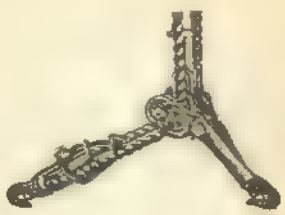
Showing Pulley after Load Has been Completed.

No 1052—MYER'S UNIVERSAL, malleable iron, reversible, w't [illegible] lbs each $5 00

[illegible] with any make [illegible] of fork [illegible] a registering head It [illegible] cannot be displaced on the load as it can be used either side up and in connection with any shape or style of fork pulley

With this [illegible] the hay is deposited in the mow in the same relative position [illegible] arrangement

No. 808. Sling Pulley, Locked Together



No. 806. Sling Pulley, Spread Apart

No. 806—MYERS', malleable iron, self-locking, with registering head for any make carrier (in ordering give number of register ng head), w't 10 lbs each $3 00

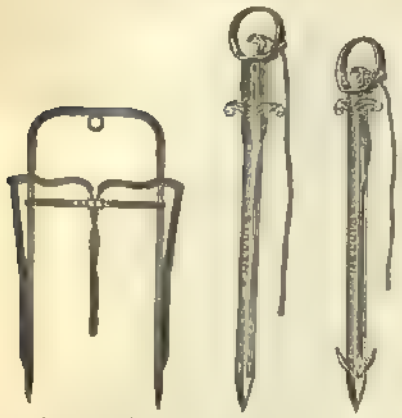
Registering Heads.

RH1. RH3. RH6. RH10. RH14. RH16. RH19. RH276.

Registering heads, No. 1 for Louden hay carrier, No. 3 for Star hay carrier, No. 6 for Porter hay carrier, No 10 for Nye and Superior hay carrier, No 14 for Myers' O. K hay carrier, No. 16 for Myers' combination hay carrier, and No. 19 for Haymaker, Imperial, and Myers' single rail hay carriers, No. 276 for Myers' new style hay carriers.

HAYING TOOLS.

HAY FORKS.



Nos. 1 and 2. No. 3

No. 1—Harpoon, double point, *25 in* spring steel tines, w't 16½ lbs....each $1 60
No. 2—Harpoon, double point, *31 in* spring steel tines w t 18½ lbs each 2 00
No. 3—Nettle, harpoon, single point spring steel w t 11 lbs each 3 00

Open.

No. 617—Myers', automatic grapple, tines and arms of high carbon spring steel, locks of best annealed malleable iron, 4 tines, double grapple, spreads 68 in., w't 34 lbs.....each $7 00
No. 619—6 tines, triple grapple, w't 51 lbs otherwise same as No. 617. .each 8 50

CENTER TRIP SPRING LOCKS.

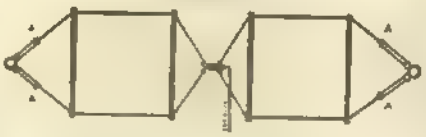
Showing Lock Closed

Showing Lock Open.

No. 622—Myers' malleable iron 4 pieces, w t 11 lbs .....each $1 00

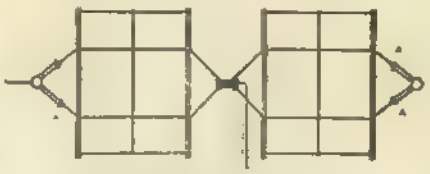
This lock is simple and strong trips easily under all circumstances and is absolutely impossible to misplace.

CENTER TRIP ADJUSTABLE SLINGS.



Showing No. 620 Sling Complete.

No. 620—Myers' Pattern, 4 ft. seasoned ash cross bars, malleable iron center trip spring lock, ½ in. loose twist ropes, adjustable from 17 to 20 ft., w't 20 lbs., each..... $3 20
No. 625 5 ft cross bars, otherwise same as No. 620, w't 23 lbs..... each 3 80



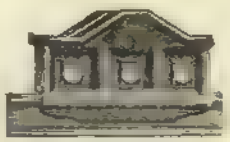
Showing No 621 Sling Complete

No. 621—Utah Pattern 6 ft seasoned ash cross bars, Myers center trip spring lock, ropes reversible from 17 to 20 ft., w t 20½ lbs.....each $5.00

The ropes are fitted with adjustable take-ups at either end, allowing the length of the sling to be varied from 17 to 20 feet. Any number of slings can be used on a load, depending on the size and number of bundles to the load.

HAY CARRIER EXTRAS.

No. H50. Fork Pulley, Complete.



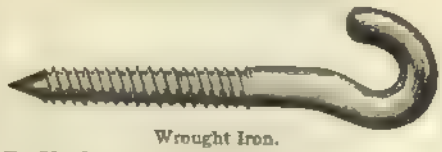
No. 103. Stop Block or Knocker.

No. 201. Rope Sheave.

No. 104. Knocker

No. H50—Fork Pulleys, complete, for Myers' old style hay carriers, w't 3¼ lbs. each..... $1 00
No. 103—Stop Blocks or Knockers, for Myers' single steel track hay carriers, each..... 50
No. 104—Extra Knockers or Trip Blocks, for Myers' Clover Leaf steel or wood track and Imperial hay carriers..... each .50
No. 201—Rope Sheaves with bushings for Myers' old style hay carriers each 40
No. H358—Rope Sheaves for Myers' new style hay carriers..... .....each .40

HAY FORK HOOKS.



Wrought Iron.

No. 50—⅝×7 in., w't per doz. 8 lbs., per dozen..... $1.20
No. 60—¾×8 in., w't per doz. 16 lbs., per dozen..... 1.40

MYER'S ROPE HITCHES.

No. 376—Malleable iron, swivel hook, w't per doz 15 lbs per dozen $3 20

The rope can be released from the fixture instantly with one hook. The rope can be shortened to any desired length by drawing on the end of the rope. A twist in rope is removed by means of swivel, instead of going to the end to affect the working of the carrier.

SNATCH BLOCKS AND SINGLETREES.

No. 628—Myers' Snatch Blocks, malleable iron, w't per doz. 48 lbs., per dozen $11 00

This device shortens the distance the horse travels, without reducing the elevating power.

No 472—Myers' Hoisting Singletrees wood, with malleable iron attachment w t 9 lbs per dozen $19 20

Latest concealed article that prevents the whiffletree from dragging on the horse's heels.

HAY FORK PULLEYS.

No. 36—6 in. maple wheel dipped in hot oil, 1 in. loose pin, heavily ribbed cast iron frame, "pass knot," swivel, w't per doz. 48 lbs.....per dozen $4 00

Extra Wood Wheels " 1 50

No. 15—5¹ in iron wheel, ¾ in. bearing swivel frame reinforced with heavy ribs on edge and center, w't per doz. 43 lbs. per dozen $3 20

No. 26—6 in. maple wheel, 1⅛ in. loose pin, cast iron frame, swivel, w't per doz. 36 lbs. per dozen $3.20

Extra Wood Wheels..... " 1 50

No. 048—Reed's pattern, 4½ in. wood wheel, ¾ hollow axle, wrought iron strap, forged steel hook, riveted hardwood shell, swivel, self-lubricating, w't per doz. 35 lbs.....per dozen $4.00

ONE DOZEN IN A BUNDLE.

No. 1133—"O K.," plain, 6 in. maple wheel dipped in hot oil, heavily ribbed cast iron frame, 1⅛ in. loose pin, swivel, w't per doz. 42 lbs.....per dozen $4.00

No. 1120—"O.K.," pass knot, 6 in. maple wheel dipped in hot oil, heavily ribbed cast iron frame, 1 in. loose pin, swivel, w't per doz. 56 lbs.....per dozen $5 00

The sheaves in Nos. 1133 and 1120 are made of hard maple dipped in oil. The frames are heavy ribbed, made in two separate halves riveted together at the swivel eye. The frame follows the rim of the sheave to a point nearly opposite the axle and is flanged out from the edge of the pulley so as to form an easy approach for the rope. This not only gives great strength to the pulley, but prevents the wearing of the rope in drawing over the side of the frame.

No. 189—Derrick, 1½ in. hard maple frame, wood wheel, steel yoke and hook, w't per doz. 56 lbs.....per dozen $8 00

The frame of this pulley is wider than the sheave, so as to allow two pulleys to be used together, the one sheave not interfering with the other. This is an extra heavy pulley intended for heavy work

For Myers' New Style Hay Carriers.

No. H254—4¼ in. wheel, malleable iron frame extending around entire surface of sheave, malleable iron clevis, steel bolt, swivel, w't per doz. 43½ lbs...per dozen $12 00

This pulley is especially designed for rough usage. The frame is made in two pieces riveted together at swivel eye. The frame extending entirely around the sheave is a great protection to the rope

No. 1062—For ⅜ or ½ in. wire cable, 7 in. iron wheel, high carbon steel frame, steel bushing, w't per doz. 80 lbs., per dozen..... $14.20

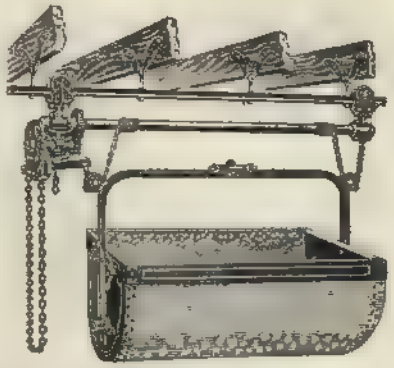
The iron sheave revolves on a steel bushing and a heavy machine bolt passes through the bushing, making it very strong and durable

LITTER CARRIERS AND PARTS.*

This carrier is practical and convenient and will do a great amount of work.

Construction. The carrier is of heavy malleable iron and the tub of galvanized iron, with double thick cross grained wood ends. The trucks have two tracker wheels each which give the carrier a double thread on the track and are run on hardened steel axles. The revolving shaft on which the supporting chains wind is supported at four points, being a very important feature, as other makes of litter carriers are supported at only two points. The span of each swivel truck is 11 in. and the entire length of the shaft is 60 in. The construction of the tub makes it possible to carry a larger load than a square or any other shaped tub, and it is self-cleaning when dumped.

The tub is supported by a frame of 1½ in. heavy channel steel, and is neatly painted and decorated



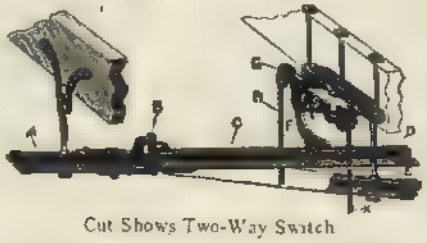
Operation. An endless chain which runs over the main drive wheel at the end of the carrier is the means of raising the tub, and it is lowered by pulling the trip chain, which releases the ratchet allowing the tub to freely descend to any desired point. The tub will descend of its own weight. Additional pressure on the trip chain acts as a brake on the shaft, giving the operator complete control of the speed.

A removable section, which allows the door of the barn to be closed, where the double angle track is used, is a necessity and must be used in order to close the barn door

Feed Tub. A Litter Carrier can instantly be converted into a Feed Carrier, by removing the Litter Tub and supplementing a Feed Tub, which is fully described below.

No. 390—Litter Carrier, complete with No. 2 tub, 26 in. wide, 41 in. long and 14 in. deep, w't 90 lbs.★. . . . . each $32.00
No. 391—Litter Carrier, complete with No. 4 tub, 26 in. wide, 41 in. long and 17 in. deep, w't 95 lbs.★. . . . . " 34.00
No. 392—Litter Carrier, complete with No. 6 tub, 26 in. wide, 41 in. long and 19 in. deep, w't 100 lbs.★. . . . . " 36.00
No. 400—Feed Carrier same as the No. 390 Litter Carrier except that the Feed Tub is used instead of the Litter Tub, size of Feed Tub, 67 in. long, 22 in. high and 25 in. wide, capacity 10 bushels, w't 110 lbs. . . . . each 38 00

SWITCHES.

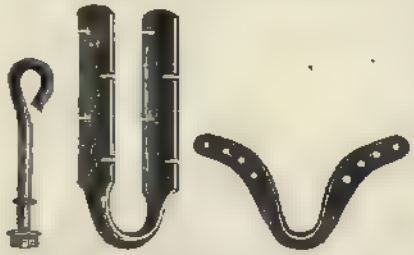


Cut Shows Two-Way Switch

No. 501—Two-way switch, w't complete 7 lbs ★. . . . . each $3 00
No. 502—Three-way switch, w't complete 8 lbs ★. . . . . each 4 00

The switch piece "C" is hinged to the main track "A," and by pulling on the cords "H" and "K" the switch can be transferred over the switch plate "G" and the Carrier run onto track "E" or "D" as required. The switch is locked in place on the track by the latch "F." It can be operated from below, no matter how high the track may be hung. The operation of the three-way switch is the same as the two-way except that the hinged portion "C" connects with three different sections of track so that the carrier may be run in three different directions from the main line "A."

HANGERS AND BRACKETS.



No. 503. No 504. No. 505.

No. 503 Hanger, Used to Support Track to Joist Bracket.

Sizes	6★	11★	13★	15★ in.
W't per doz. . .	4½	7	8	9 lbs.
Per dozen . . .	$1.50	2.50	2.70	2.90

No. 504—Ridge pole hanger, used on 2 in. joist or ridge pole, by driving a nail in each slot it is secure enough to support any track, w't per doz. 5½ lbs.,★ per dozen. $0.70

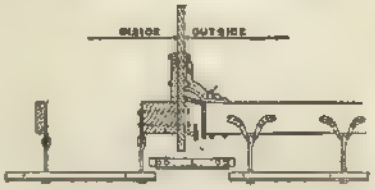
No. 505—Joist bracket, for supporting track to joist, w't per doz. 4½ lbs.,★ per dozen. 70

DOUBLE ANGLE TRACK.

No. 499—Made of two pieces of ⅞ in. angle steel, riveted together, supported by steel hangers which can be placed to accommodate the joists, w't per ft 1½ lbs. ★. . . . . per foot $0 18

Hangers and brackets, shown in cut, are not furnished with the track.

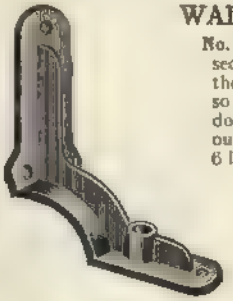
REMOVABLE SECTIONS.



Piece marked L. illustrates the removable section.

No. 506—Used on double angle track, is very simple and the only means of closing the barn door, can be removed or replaced instantly, w't 2½ lbs.★ each $0.80

WALL BRACKETS.



No. 507 — Used to secure ridge pole to the barn, is shaped so as to allow the door to close without striking, w't 6 lbs. ★. . . . . each $1 20

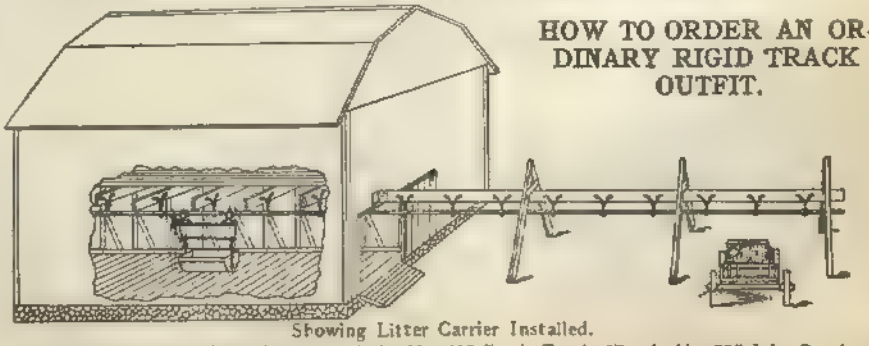
FEED TUBS.

No. 508—W't 50 lbs ★. . . . . each $19 00

This tub is furnished with the No. 400 Feed Carrier. It is made of hard wood and bound with heavy galvanized iron bands. The length over all is 67 in., width 25 in., height 22 in. with a capacity of 10 bushels.

The ends and bottom are of galvanized iron, making it easy to shovel and to dump. The bail is so constructed as to permit the greatest freedom in shoveling, being oval at the top.

HOW TO ORDER AN ORDINARY RIGID TRACK OUTFIT.



Showing Litter Carrier Installed.

1 only No. 390 Litter Carrier, 100 ft. No. 499 D. A. Track, 67 only No. 505 Joist Brackets, 67 only No. 503 Hangers, 1 only No. 507 Wall Bracket, 1 only No. 506 Removable section, if a two-way switch is required, order 1 only No. 501 Switch, if a three-way, 1 only No. 502 Switch.

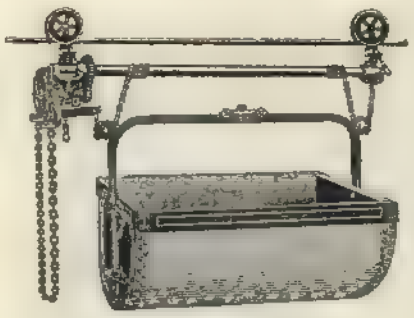
★*FOR FACTORY SHIPMENT ONLY.*

LITTER CARRIERS AND PARTS.*

We illustrate here another style of Litter Carrier, run on rod track instead of double angle track. The construction of the carrier is the same as the one shown on the previous page, except that the swivel trucks have a 6 in. tracker wheel each, while the double angle track carriers have two wheels to each truck.

Automatic spring keepers, which prevent the carrier from jumping the track are fitted to the trucks, which also takes care of the carriers at the switches and curves.

A very important feature of this style of Litter Carrier is the **Automatic tripping and returning device.** It is very simple in construction and absolutely positive in action, only being necessary for the operator to give the carrier a good steady shove which will send it out into the yard a hundred feet or more. When it reaches the tripping device (which can be arranged at any desired point) it dumps the tub and automatically returns it to the barn. Furnished free with every Rod Track outfit, it cannot get out of position, and never fails to work.



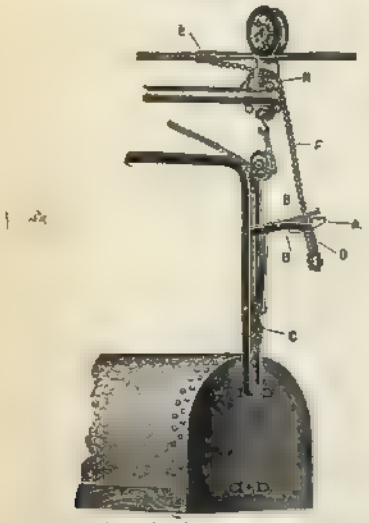
The Rod Track is of special drawn wire of the No. 0000 size, which is especially adapted to meet the requirements for Litter Carrier outfits.

The Litter Tub is the same in construction as the one shown on the previous page. The Feed Tub (as furnished with the No. 400 Feed Carrier can also be used on this style of carrier.

No stockman or farmer should be without one of either of these carriers installed in his barn. As a labor saving device they are incomparable and many steps are saved by their use.

No. 490—Litter Carrier, complete with No. 2 tub, 26 in. wide, 41 in. long and 14 in. deep, w't 90 lbs ★. . . . . each $34 00
No. 500—Feed Carrier, complete with feed tub shown on previous page, w't 110 lbs.★. . . . . " 38 00

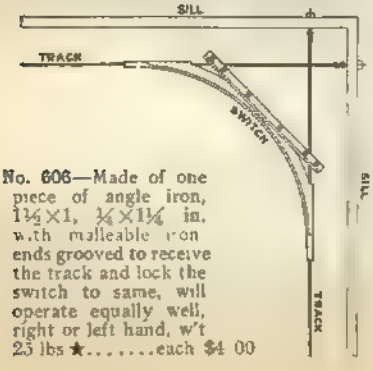
TRIPPING AND RETURNING DEVICES.



No. 600 W't 4 lbs.★. . . . . each $4 00

The above illustration shows the manner in which the tubs are dumped and the carrier returned. When the Carrier reaches the trip, the tripping jaws "B" engage the chain above the trip casting "A" and at the same time the chain is drawn over the truck frame under the wheel which raises the trip casting, which in turn raises the trip jaws "B" which operate the trip latch "C" and dump the Tub. It will also be seen that the momentum of the Carrier will compress the spring "D," below the trip casting, thus checking the Carrier and automatically starting it back to the barn without any danger of its leaving the track. The trip casting "A" can be adjusted to any height on the chain which supports it.

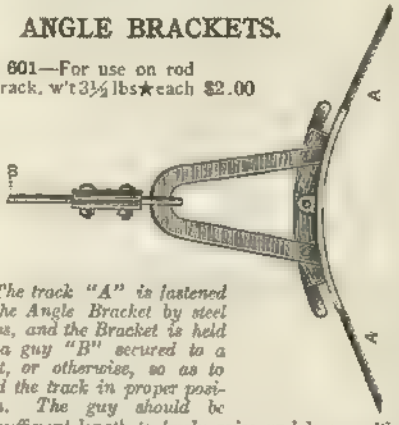
ROD TRACK SWITCHES.



No. 606—Made of one piece of angle iron, 1¼×1, ¼×1¼ in. with malleable iron ends grooved to receive the track and lock the switch to same, will operate equally well, right or left hand, w't 25 lbs ★. . . . . each $4 00

ANGLE BRACKETS.

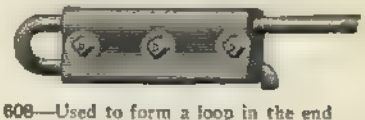
No. 601—For use on rod track, w't 3½ lbs★each $2.00



The track "A" is fastened to the Angle Bracket by steel clips, and the Bracket is held by a guy "B" secured to a post, or otherwise, so as to hold the track in proper position. The guy should be of sufficient length to freely raise and lower with the track. A certain amount of guy rod "B" will be required, depending on the distance to the support by which the Bracket is held. A tension bolt should be also used on the end of the guy rod. Neither the tension bolt nor guy rod are included in the price of the Bracket. (See below.)

No. 602—⅛ in. tension bolt★. . . . . each $1.00
No. 603—Guy rod★. . . . . per foot .10

LOOP CLAMPS.

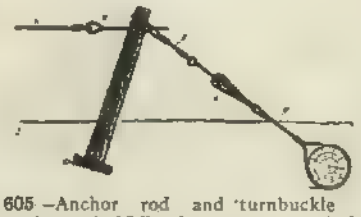


No. 608—Used to form a loop in the end of rod track, w't 1¾ lbs★. . . . . each $1.00

ROD TRACK.

No. 607—Size 0000, w't per 100 ft. 42 lbs.★ per hundred feet. $5 50

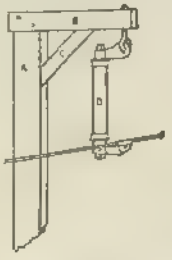
ANCHOR RODS AND TURNBUCKLES.



No. 605—Anchor rod and turnbuckle complete, w't 15 lbs.★ . . . . . each $4 00

It is very important for the successful working of a rod track outfit that the ends of the track be properly secured. By the use of this device the track will not sag or get out of shape.

SPRING TRACK SUPPORTS.

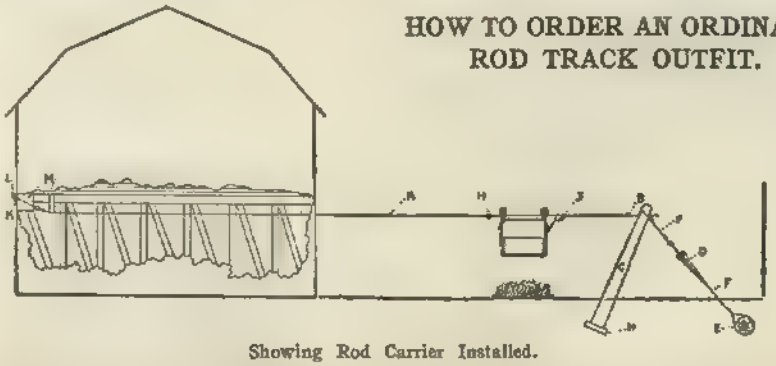


For Outside of Barn.

No. 604—Should be used when track runs more than 100 ft. at a distance of every 50 ft of track. w't 8½ lbs★ each $3 00

The arm "B" should be 2 ft. long between the post "A" and the bolt for suspending track support. The post "A" must be well anchored.

HOW TO ORDER AN ORDINARY ROD TRACK OUTFIT.



Showing Rod Carrier Installed.

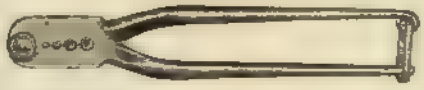
1 only No. 490 Litter Carrier, 100 ft. No. 607 Rod Track, 2 only No. 602 Tension Bolts, 1 only No. 605 Anchor Rod and Turnbuckle, 1 only No. 604 Spring Track Support, (when more than 100 ft of track is used, order one support for each additional 50 ft.), where it is necessary to run track to one side of a direct line, specify 1 only No. 601 Angle Bracket, 1 only No. 606 Rod Track Switch (when necessary).

★*FOR FACTORY SHIPMENT ONLY.*

TELEPHONE CONSTRUCTION TOOLS.

SPLICING CLAMPS.

No. 53E—10 in., forged steel, polished head, two round and two oblong holes, for Nos. 2, 4, 6 and 8 copper wire, w't 1 lb. ..... each $3 20



No. 155E—7 in. baby, forged steel, full polished, four round holes, for Nos. 10, 12, 14 and 16 copper wire, w't 6 oz. each. $2 70

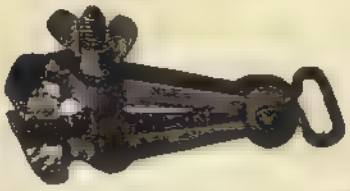
No. 55E—10 in., forged steel, full polished, four round holes, for Nos. 8, 10, 12 and 14 iron wire and Nos. 6, 8, 10 and 12 copper wire, w't 1 lb. ..... each 3 20

No. 57E—11 in., forged steel, full polished, five round holes for Nos. 6, 8, 10, 12 and 14 iron wire and Nos. 4, 6, 8, 10 and 12 copper wire, w't 1 lb. ..... each 3 40

Combination Wire and Sleeve

No. 9E—10½ in., forged steel, full polished, five holes for Nos. 6, 8, 10, 12 and 14 iron wire, Nos. 4, 6, 8, 10 and 12 copper wire, and Nos. 8, 10, 12 and 14 sleeves, w't 1 lb. ..... each $3 60

LINEMEN'S VISES.



No. 375E—5½ in., with loop ..... each $2 20
No. 376E—6 in., with loop ..... " 2 60
No. 377E—Straps for vise ..... " 1 65

HAVEN'S WIRE CLAMPS.

No. 368E—Steel, for No. 8 wire and finer, w't 2½ lbs. ..... each $3.00
No. 369E—Steel, for ½ in. wire and finer, w't 2½ lbs. ..... each 5.50

A very efficient clamp for all around work.

ECCENTRIC CLAMPS.

Without Straps.

No. 130E—Steel, for No. 8 wire and finer, w't 1 lb. ..... each $1 60
No. 131E—Strap for above. ..... " 1.65

COME ALONGS.

No. 126E—Malleable iron, for No. 8 wire and finer, w't 1 lb. ..... each $1.20
No. 127E—Malleable iron, for No. 6 wire and finer, w't 2 lbs. ..... each 2.00
No. 128E—Malleable iron, for No. 0 wire and finer, w't 2¼ lbs. ..... each 2.50

NEW CHICAGO WIRE GRIPS.

Without Pulleys.

No. 870E—Steel, for No. 10 wire and finer, w't 15 oz. ..... each $3 80
No. 871E—Steel, for No. 6 wire and finer, w't 23 oz. ..... each 4.00
No. 872E—Steel, for No. 0 wire and finer, w't 2¾ lbs. ..... each 6 60
No. 873E—Steel, for No. 0000 wire and finer, w't 7½ lbs. ..... each 10 00

It grips and holds and is most convenient to handle

With Pulleys.

No. 874E—Steel, for No. 10 wire and finer, with pulley for ¼ in. rope, w't 1¼ lbs. ..... each $4.80
No. 875E—Steel, for No. 6 wire and finer, with pulley for ⅜ in. rope, w't 1¼ lbs. ..... each 5.00
No. 876E—Steel, for No. 0 wire and finer, with pulley for ½ in. rope, w't [illegible] lbs. ..... each 7 60
No. 877E—Steel, for No. 0000 wire and finer, with pulley for ⅝ in. rope, w't 9 lbs. ..... each 11 50

It can be pushed out on the wire, so as to get as much slack as necessary, and pulls straight, leaving no kinks in the wire.

Without Pulleys, for Insulated Wire.

No. 878E—Steel, for No. 18 to No. 4 wire, w't 2¾ lbs ..... each $6.50
No. 879E—Steel, for No. 14 to No 00 wire, w't 3½ lbs. ..... each 8 00

With Pulleys, for Insulated Wire.

No. 881E—Steel, for No. 18 to No. 4 wire, pulleys for ½ in. rope, w't 2¾ lbs., each 7.50
No. 882E—Steel, for No. 14 to No. 00 wire, pulley for ⅜ in. rope, w't 4 lbs. each 9.00

A nickel plated well proportioned, reliable tool that will do the work required on either iron or copper wire.

WIRE PEELERS

No. 1414E—Perry, plain ..... each $0 60

Used for removing the insulation from wire.

LAG SCREW WRENCHES.

No. 214E—12 in., polished handle, for ½ and ⅝ in. lag screws, w't 1 lb. each $1 60

No. 326E—Combination for ⅜, ½ and ⅝ in. lag screws and bolts, w't 2¼ lbs. each $2 50

SPLICING WRENCHES.

No. 321E—7 in., steel, full polished, for Nos. 4 and 6 iron wire or 2 and 4 copper wire. ..... each $1.70
No. 322E—7 in., steel, full polished, for Nos. 8 and 9 iron wire or 6 and 8 copper wire. ..... each 1.70
No. 323E—7 in., steel, full polished, for Nos. 10 and 12 iron wire or 8 and 10 copper wire. ..... each 1.70

GALVANIZED PULLEY BLOCKS.

No. 184E—4 in., malleable iron, galvanized, with eccentric grips, for ⅛ in. rope, *without rope*. ..... per pair $7.00

Rope extra. State kind, size and length wanted.

ANTI-HUMMS.

No. 1447E—Galvanized ..... each $0 25

Will eliminate the humming noises of telephone lines.

MAGNET WINDERS.

No. 600E—Complete. ..... each $7.00

Handy tool in every telephone exchange for rewinding ringer and induction coils.

TELEPHONE CONSTRUCTION MATERIAL.

TOOL BAGS.

No. 310E—16 in., canvas, with leather bottom, steel frames, billets, buckle pieces and handles are of leather, riveted to frames, one inside pocket, w't 3¼ lbs. ..... each $5 00

No. 316E—20 in., otherwise same as No. 310E, w't 3½ lbs. ..... each 6.00

CARBON BAGS.

No. 325E—Leather, with shoulder straps, w't 2 lbs. ..... each $5 00

POLE CLIMBERS.

Eastern Pattern.

No. 1110E—Eastern pattern, 15 in., per pair $3.60

No. 1111E—Eastern pattern, 15½ in., per pair 3.60

No. 1112E—Eastern pattern, 16 in., per pair 3.60

No. 1113E—Eastern pattern, 16½ in., per pair 3.60

No. 1114E—Eastern pattern, 17 in., per pair 3.60

No. 1115E—Eastern pattern, 17½ in., per pair 3.60

No. 1116E—Eastern pattern, 18 in., per pair 3 60

Above climbers are made of best forged steel. Prices do not include straps.

POLE CLIMBER STRAPS.

No. 111E—For Eastern climbers, w't per set 1 lb. ..... per set $1.50

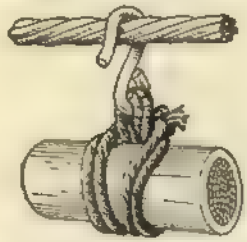
A set consists of two upper straps, with 4×4 in. plain leather pads and two lower straps without pads.

TOOL BELTS.

No. 350E—Leather, length over all 40 in., width 2¼ in., w't ½ lb. ..... each $1 50

No. 353E—Leather, length over all 40 in., width 2¼ in., with safety straps, w't 2½ lbs. ..... each $2 50

CABLE HANGERS.



No. 225E—Marlin, 9 in. loop for 25 pair, cable ..... per thousand $6.40

No. 250E—Marlin, 11 in. loop for 50 pair, cable ..... per thousand 7.00

No. 275E—Marlin, 12 in. loop for 75 pair, cable ..... per thousand 7 35

No. 2100E—Marlin, 14 in. loop for 100 pair, cable ..... per thousand 7 85

No. 2150E—Marlin, 15 in. loop for 150 pair, cable ..... per thousand 8.15

No. 2200E—Marlin, 16 in. loop for 200 pair, cable ..... per thousand 8 50

Marlin cable hangers have many advantages over the other types which render them superior for cable suspension. They are low in "first cost," are easily fastened in place, are strong and durable. There is no danger of damaging the lead sheath in their use, and the cable may be installed without grounding the sheath if this is desired.

No. 238E—Boston ..... per thousand $40.00

Made of galvanized steel wire and zinc, strip adjustable to any size cable, simple and durable.

The method of using this clamp is very simple and the heavier the weight, the tighter the clamp becomes.

TEST CONNECTORS.

No. 705E—Pierce ..... each $0 10

Wires are held securely with solid copper connections between, no rocking motion when wires of unequal diameters are clamped as they are centered directly one above the other. Made of spring brass.

TEST CLAMPS.

No. 706E—Brass ..... each $0 10

A very strong, durable connector easily adjusted with thumb nut and screw.

WIRE CONNECTORS.

No. 200E—For Nos. 12 and 14 wire. each $0 05

ONE HUNDRED IN A STANDARD PACKAGE.

WIRE CONNECTORS.

No. 1001E—Copper, for No. 10 wire, per hundred. $3.50

No. 1002E—Copper, for No. 12 wire, per hundred. 3.50

No. 1003E—Copper, for No. 14 wire, per hundred. 3.50

No. 1104E—Iron, for No. 10 wire, per hundred. 3.25

No. 1105E—Iron, for No. 12 wire, per hundred. 3.25

No. 1106E—Iron, for No. 14 wire, per hundred. 3.25

These are made so the strain is longitudinal and not vertical.

ELECTRIC CONSTRUCTION MATERIAL.

ELECTRIC LIGHT CROSS ARMS.

Yellow Pine.

Size 3¼×4¼ in., bored for 1½ in. pins, two ½ in. center bolts, and two ⅝ in. brace bolts, painted red.

Nos.	PINS	LENGTH FEET	SPACINGS ENDS INCHES	SPACINGS CENTER INCHES	SPACINGS SIDES INCHES	W'T EACH.	PER HUNDRED
823E	2	3	4	28		12	$24.00
844E	4	4	4	16	12	16	32.00
845E	4	5	4	18	17	20	40.00
866E	6	6	4	16	12	24	48.00
868E	6	8	4	18	17½	32	64.00
888E	8	8	4	16	12	32	64 00
8810E	8	10	4	17½	15¾	40	80 00
81010E	10	10	4	16	12	40	80 00

Washington Fir.

Size 3¼×4¼ in., bored for 1½ in. pins, two ½ in. center bolts, and two ⅝ in brace bolts, unpainted.

Nos.	PINS	LENGTH FEET	SPACINGS ENDS INCHES	SPACINGS CENTER INCHES	SPACINGS SIDES INCHES	W'T EACH.	PER HUNDRED
1301E	2	3	4	28		10	$30 00
1302E	4	4	4	16	12	13	48 00
1303E	4	5	4	18	17	17	60 00
1304E	6	6	4	16	12	20	80 00
1305E	6	8	4	18	17½	26	112 00
1306E	8	8	4	16	12	26	112 00
1307E	8	10	4	17½	15¾	33	150 00
1308E	10	10	4	16	12	33	150 00

Special borings to order. Special prices on standard arms of every description.

TELEPHONE CROSS ARMS.

Yellow Pine.

Size 2¾×3¾ in., bored for 1¼ in. pins, two ⅝ in. center bolts and two ⅝ in brace bolts, 28 in apart, painted red.

Nos.	PINS	LENGTH INCHES	SPACINGS ENDS INCHES	SPACINGS CENTER INCHES	SPACINGS SIDES INCHES	W'T EACH.	PER HUNDRED
224E	2	24	3	18		6	$13 00
230E	2	30	3	24		7	17 30
442E	4	42	3	16	10	10	22 75
662E	6	62	3	16	10	16	33 60
882E	8	82	3	16	10	21	44 40
10102E	10	102	3	16	10	25	55.25

Washington Fir.

Size 2¾×3¾ in bored for 1¼ in. pins two ½ in. center bolts and two ⅝ in. brace bolts, 28 in. apart, unpainted.

Nos.	PINS	LENGTH INCHES	SPACINGS ENDS INCHES	SPACINGS CENTER INCHES	SPACINGS SIDES INCHES	W'T EACH.	PER HUNDRED
2300E	2	24	3	18		5	$14 00
2301E	2	30	3	24		6	17 50
2302E	4	42	3	16	10	9	25 00
2303E	6	62	3	16	10	13	40 00
2304E	8	82	3	16	10	17	58 00
2305E	10	103	3	16	10	21	80 00

Ten and six pin, bored for one ⅝ in. center bolt, shipped without extra charge when so ordered. Special borings to order. Special prices on arms of every description other than as above. Special cross arms of every description made to order.

WOOD PINS.

No. 1148E—Oak, telephone size, 1¼×8 in., painted. .....per hundred $1 30
No. 1129E—Oak electric light size, 1½×9 in., painted.....per hundred 1.50
No. 2148E—Locust, telephone size, 1¼×8 in., not painted.....per hundred 2.00
No. 2129E—Locust, electric light size, 1½×9 in., not painted...per hundred 2.50
No. 3148E—Krekose, telephone size, 1¼×8 in.....per hundred 1 60
No. 3129E—Krekose, electric light size, 1½×9 in.....per hundred 2 00

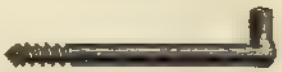
ONE HUNDRED IN A SACK

WOOD BRACKETS.

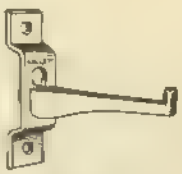
No. 710E—Oak, pony telephone size, 1½×2×10 in., painted....per hundred $2.00
No. 712E—Oak, electric light size, 1½×2¼×12 in., painted.....per hundred 2 50

ONE HUNDRED IN A SACK.

POLE STEPS.



No. 9160E—Plain, cone pointed ⅝×9 in., per hundred..... $5 40
No. 9165E—Galvanized, cone pointed, ⅝×9 in.....per hundred 7.20



No. 1360E—Complete .....each $0 45
No. 1362E—Detachable step ..... " .40
No. 1364E—Plates..... " 05

Is the best detachable step made, because of the light weight of the step, which is made of aluminum, each step weighing only 5½ ounces, so that they can be carried in a lineman's pocket, and are strong enough to hold up the heaviest weight man.

The fitting on the pole is a simple plate, permanent—nothing to get out of order or clogged with ice. Cheaper and much handier than a ladder.

Staple.

No. 1911E—Galvanized.....each $0.25

The staple butt step is a strong, handy step to use on a pole where a great deal of climbing has to be done.

INSULATORS.

No. 9E—Glass, telephone, single groove, w't per piece 10 oz., w't per thousand 765 lbs.....per thousand $30.00
No. 99E—Porcelain, telephone, single groove, w't per piece 10 oz., w't per thousand 765 lbs.....per thousand 30.00

FOUR HUNDRED IN A BARREL.

No. 12E—Glass, telephone, double groove w't per piece 10⅜ oz., w't per thousand 770 lbs.....per thousand $30 00
No. 112E—Porcelain, telephone, double groove, w't per piece 10⅜ oz., w't per thousand 770 lbs.....per thousand 30.00

FOUR HUNDRED IN A BARREL.

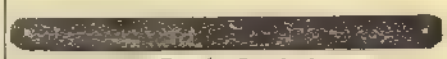
No. 1E—Standard, deep groove, w't per piece 17 oz., w't per thousand 1200 lbs.....per thousand $67.00

TWO HUNDRED AND FIFTY IN A BARREL.

No. 3E—Deep groove, double petticoat, w't per piece 20 oz., w't per thousand 1120 lbs. .....per thousand $60.00

TWO HUNDRED AND FIFTY IN A BARREL.

CROSS ARM BRACES.



Regular Standard.

No. 520E—Plain, 20×1×⅛ in., per hundred..... $ 6.50
No. 522E—Plain, 22×1×⅛ in., per hundred..... 8 60
No. 524E—Plain, 24×1 7/32×⅛ in., per hundred..... 10 70
No. 526E—Plain, 26×1 7/32×⅛ in., per hundred..... 11.60
No. 1020E—Galvanized, 20×1×⅛ in., per hundred..... 9.00
No. 1022E—Galvanized, 22×1×⅛ in., per hundred..... 11.50
No. 1024E—Galvanized, 24×1 7/32×⅛ in., per hundred..... 14.00
No. 1026E—Galvanized, 26×1 7/32×⅛ in., per hundred..... 15.00

TELEPHONE CONSTRUCTION MATERIAL.

POST HOLE SHOVELS.

No. 113E—7 ft. handle, 9½ in. strap, 9 in. blade, w't per doz. 92 lbs., per dozen $20.50
No. 112E—7 ft. handle, 28 in. strap, 9 in blade, w't per doz. 97 lbs., per dozen 22 50
No. 115E—8 ft. handle, 9½ in. strap, 9 in. blade, w't per doz. 95 lbs., per dozen 22 50
No. 114E—8 ft. handle, 28 in. strap, 9 in. blade, w't per doz. 100 lbs., per dozen 24 50

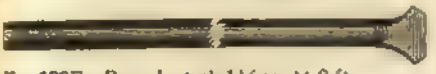
POST HOLE SPOONS.

No. 116E—7 ft. handle, 28 in. strap, 9 in. blade, w't per doz. 93 lbs., per dozen $24.00
No. 118E—8 ft. handle, 28 in. strap, 9 in. blade, w't per doz. 96 lbs., per dozen 26 00

SLICK DIGGERS.

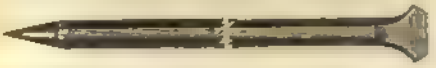
No. 125E—8 ft., steel blade, w't per doz. 204 lbs.....per dozen $45 00

DIGGING BARS.



No. 120E—Round, steel, 1⅛ in. × 8 ft., w't per doz. 312 lbs.....per dozen $42.00
No. 122E—Octagon, steel, 1⅛ in.×8 ft., w't per doz. 336 lbs.....per dozen 50.00
Will cut roots and break rocks

CROW AND DIGGING BARS.



No. 144E—Octagon, steel, 1 in. × 7 ft., w't per doz. 216 lbs.....per dozen $36.00
No. 145E—Octagon, steel, 1⅛ in.×8 ft., w't per doz. 336 lbs.....per dozen 52 00

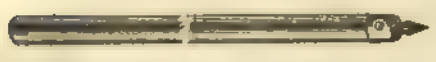
TAMPING AND DIGGING BARS.

No. 140E—Octagon, steel, 1 in × 7 ft., w't per doz 228 lbs per dozen $40 00
No. 141E—Octagon steel, 1⅛ in.×8 ft., w't per doz. 360 lbs.....per dozen 56.00

TAMPING BARS.

No. 124E—8 ft., hardwood handle, iron shoe, w't per doz. 120 lbs., per dozen $25 00

PIKE POLES.



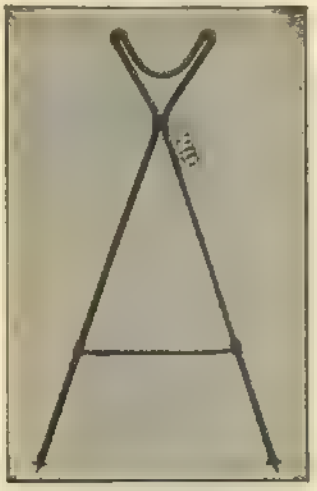
No. 212E—12 ft.×1¾ in., steel point and ferrule, w't per doz. 114 lbs...per dozen $24.00
No. 214E—14 ft.×1¾ in., steel point and ferrule, w't per doz. 126 lbs.. per dozen 26.00
No. 216E—16 ft.×1¾ in. steel point and ferrule, w't per doz. 132 lbs.. per dozen 28 00
No. 218E—18 ft.×1¾ in. steel point and ferrule, w't per doz. 138 lbs..per dozen 30.00

POLE SUPPORTS.

Mule. Jenny.

No. 1175E—4½ ft. mule, selected hickory, heavily ironed and braced, w't 34 lbs., each..... $5.00
No. 1176E—6 ft. mule, selected hickory, heavily ironed and braced, w't 40 lbs., each..... 6.00
No. 1177E—7½ ft. mule, selected hickory, heavily ironed and braced, w't 47 lbs., each..... 7.00
No. 1178E—6 ft. jenny, selected hickory, heavily ironed and braced, w't 33 lbs., each..... 8.00
No. 1179E—7½ ft., jenny, selected hickory, heavily ironed and braced, w't 43 lbs.....each 9 00

POLE CRUTCHES.



No. 315E—Extreme height 8 feet, outside width of base 5 ft., distance across supporting curve 1 ft. 6 in., wrought iron pipe in frame, inside diameter 1¼ in., outside diameter 1⅝ in. Brace rod of solid wrought iron, w't 50 lbs., each..... $15.00

The washers at the feet readily adjust themselves to irregularities of ground, an important feature.

RAISING FORKS.

No. 172E—12 ft.×1¾ in. handle, wrought steel fork and ferrule, w't per doz 120 lbs.....per dozen $30.00
No. 173E—14 ft.×1¾ in handle, wrought steel fork and ferrule, w't per doz. 156 lbs. .....per dozen 32 00
No. 174E—16 ft.×1¾ in. handle, wrought steel fork and ferrule, w't per doz. 190 lbs.....per dozen 34 00

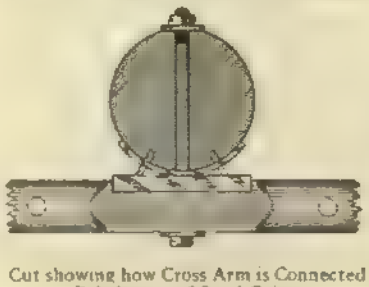
CANT HOOKS.

No. 186E—4½ ft.×2½ in. rock maple handle, malleable iron clasp and improved extension toe ring, duck bill hook, w't per doz. 96 lbs....per dozen $21 93

CARRYING HOOKS.

No. 194E—2½×44 in. selected rock maple handle, malleable iron clamp, ¾×⅜ in. crucible steel hook, hung with swivel hinge, w't per doz. 102 lbs. per dozen..... $30.00

BULL DOG STEEL GAINS.



Cut showing how Cross Arm is Connected to Pole by use of Steel Gain.
Made for Either Telephone or Electric Light Size Arms and for ⅝ in. Bolts.

No. 404E—For electric light arms, plain, each $0 24
No. 405E—For electric light arms galvanized,..... each 28
No. 406E—For telephone arms, plain ..... .24
No. 407E—For telephone arms, galvanized each ..... .28

A comparatively new device although the demand for something of this kind has been felt for many years. The advantages of a steel support for a cross arm are obvious to every one familiar with telephone or electric light construction. It is an acknowledged fact that a gain cut in a pole is a detriment to the pole as it not only weakens the pole but by exposing the end grain it is more liable to rot

TELEPHONE CONSTRUCTION MATERIAL.

MESSENGER POLE SUPPORTS.

No. 118E—Plain, for ¼ in. strand...each $0.20
No. 119E—Galvanized, for ¼ in. strand, each..... .26

MESSENGER SUPPORTS.

No. 1120E—2×2 in., Plain ..each $0 14
No. 1121E—2×2 in., Galvanized. " 17

This support will carry as high as ½ in. strand.

MESSENGER CLAMPS.

No. 60E—Plain, for ¼ in strand . each $0 16
No. 61E—Galv. for ¼ in. strand.... " 22
No. 62E—Plain, for ⅜ in. strand . " 20
No. 63E—Galv. for ⅜ in strand " 26
No. 64E—Plain, for ½ in. strand . . " 26
No. 65E—Galv., for ½ in. strand.. " 32

The upright leg is bored to take ½ in. bolts. For supporting galvanized strand.

BRIDLE RINGS.

No. 1330E—⅛ in., enameled steel, 1⅝ in. eye, ¼ in. opening, 1¼ in. shank, per hundred.....$16.00
No. 1331E—⅛ in., enameled steel, 1⅝ in. eye, ¼ in. opening, ⅜ in. shank, per hundred..... 16.00
No. 1332E—⅛ in. enameled steel, 1¼ in. eye, ½ in. opening, 1½ in. shank, per hundred..... 16.00
No. 1333E—⅛ in., enameled steel, ⅝ in. eye, ¼ in. opening, ⅜ in. shank, per hundred..... 16.00
No. 1334E—⅛ in., enameled steel, 3 in. eye, ¼ in. opening, 1¾ in. shank, per hundred..... 16.00

No. 1334E is especially adapted for carrying wires at the side of terminal poles from the cable boxes to the cross arm.

SQUARE WASHERS.

No. 519E—Plain iron, 2×2×¼ in., w't per thousand 125 lbs....per thousand $50.00
No. 520E—Plain iron, 2¼×2¼×⅛ in., w't per thousand 260 lbs..per thousand 70.00
No. 521E—Galv. iron, 2×2×¼ in., w't per thousand 130 lbs.....per thousand 80.00
No. 522E—Galv. iron, 2¼×2¼×⅛ in., w't per thousand 280 lbs...per thousand 100.00

For ⅜ in. cross arm bolt.

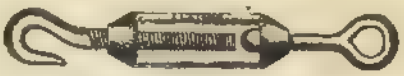
ONE HUNDRED IN A BUNDLE.

ROUND WASHERS.

No. 514E—Plain iron, ¼ in., for ⅜ in. bolt, w't per thousand 15 lbs....per thousand $12.50
No. 516E—Plain iron, ⅛ in., for ½ in. bolt, w't per thousand 35 lbs...per thousand 15.00
No. 515E—Galv. iron, ¼ in., for ⅜ in. bolt, w't per thousand 15 lbs...per thousand 20 00
No. 518E—Galv. iron, ⅛ in., for ½ in. bolt, w't per thousand 40 lbs...per thousand 30 00

ONE HUNDRED IN A BUNDLE.

TURNBUCKLES.



No. 9100E—Plain, ½ in. bolt, length between heads 8 in.....each $1.10
No. 9102E—Plain, ⅝ in. bolt, length between heads 10 in.....each 2.00
No. 9104E—Plain, ¾ in. bolt, length between heads 12 in.....each 2.75
No. 9106E—Plain, ⅞ in. bolt, length between heads 13 in.....each 3.50
No. 9108E—Plain, 1 in. bolt, length between heads 14 in.....each 4.25
No. 9101E—Galv., ½ in. bolt, length between heads 8 in .....each 1.30
No. 9103E—Galv., ⅝ in. bolt, length between heads 10 in.....each 2.40
No. 9105E—Galv., ¾ in. bolt, length between heads 12 in.....each 3.50
No. 9107E—Galv., ⅞ in. bolt, length between heads 13 in.....each 4.25
No. 9109E—Galv., 1 in. bolt, length between heads 14 in.....each 5.50

Prices furnished on application for welded eye bolt, or with swivel eye and eye bolt.

WIRE ROPE CLIPS.

No. 770E—Japanned, for ¼ in. rope, w't per hundred 17 lbs....per hundred $11.00
No. 771E—Japanned, for ⅜ in. rope, w't per hundred 18 lbs....per hundred 11.00
No. 772E—Japanned, for ⅜ in. rope, w't per hundred 26 lbs....per hundred 12.00
No. 773E—Japanned, for ½ in. rope, w't per hundred 40 lbs....per hundred 15.00
No. 774E—Galv., for ¼ in. rope, w't per hundred 19 lbs. ..per hundred 15.00
No. 775E—Galv., for ⅜ in. rope, w't per hundred 20 lbs. per hundred 15.00
No. 776E—Galv., for ⅜ in. rope, w't per hundred 28 lbs per hundred 16.00
No. 777E—Galv., for ½ in. rope, w't per hundred 44 lbs . per hundred 19 00
No. 780E—Galv., for ⅝ in rope, w't per hundred 87 lbs . . . per hundred 35 00
No. 781E—Galv., for ¾ in. rope, w't per hundred 128 lbs.. per hundred 40 00

These are drop forged and cannot be broken and are the strongest and most effective U bolts on the market.

THIMBLES.

No. 405E—Diam. ¼ in., galv., w't per hundred 5 lbs.. ..per hundred $8.00
No. 406E—Diam. ⅜ in., galv., w't per hundred 6½ lbs.... . .per hundred 8.00
No. 407E—Diam. ⅜ in., galv., w't per hundred 10 lbs..... per hundred 9.00
No. 408E—Diam. ½ in., galv., w't per hundred 11½ lbs.....per hundred 11.00

GUY CLAMPS.

No. 2516E—2 bolt, 3 in. galv. clamps, for ⅜ in. or smaller strand, w't 1 lb., each..... $0.13

No. 3538E—3 bolt, 4 in. galv. clamps, for ⅜ in. or smaller strand, w't 1½ lb., each..... $0 17
No. 3612E—3 bolt, 5 in. galv. clamps, for ⅞ in. or ½ in. strand, w't 2 lbs., each..... 18

TELEPHONE CONSTRUCTION MATERIAL.

D. & T. GUY ANCHORS.

Nos. 1E and 3E, Closed Nos. 2E and 4E open

No. 1E—One 8×2½ in. blade, ⅝ in. × 5 ft. shaft, w't 6 lbs. ..... each $2 00
No. 2E—Two 8×2½ in. blades, ⅝ in. × 5 ft. shaft, w't 7 lbs. ..... each 2 50
No. 3E—One 12×3½ in. blade, ⅝ in. × 6 ft. shaft, w't 15 lbs. ..... each 3 20
No. 4E—Two 12×3½ in. blades ⅞ in. × 6 ft. shaft, w't 16 lbs. ..... each 4 00

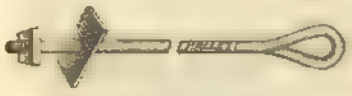
Nos. 2E and 4E have two pairs of blades at right angles to each other.

The anchor is driven into the ground the desired depth with sledge or maul. The blades are set by twisting to the right three revolutions. The design of the blades, like those of a screw propeller, causes them to spread when the anchor is twisted. The pitch is such that they spread to an angle of ninety degrees with the rod in three revolutions.

The spreading of the blades sinks the anchor about one inch, so that there is absolutely no lost motion in the ground. The pull is on solid earth that has not been disturbed.

The anchor can be set by one man in sixty seconds and will hold more than any other anchor manufactured.

ANCHOR OR GUY RODS.



No. 41E—Plain, ½ in. × 6 ft., with nut and washer, w't per hundred 479 lbs., per hundred $27 00
No. 43E—Plain, ⅝ in. × 6 ft. with nut and washer, w't per hundred 700 lbs., per hundred 36 40
No. 45E—Plain, ⅝ in. × 8 ft., with nut and washer, w't per hundred 900 lbs., per hundred 48 20
No. 47E—Plain, ¾ in. × 6 ft., with nut and washer, w't per hundred 1,000 lbs. per hundred 43 96
No. 42E—Galv., ½ in. × 6 ft. with nut and washer, w't per hundred 503 lbs., per hundred 35 28
No. 44E—Galv., ⅝ in. × 6 ft. with nut and washer, w't per hundred 720 lbs., per hundred 50 54
No. 46E—Galv., ⅝ in. × 8 ft., with nut and washer, w't per hundred 940 lbs., per hundred 63 26
No. 48E—Galv., ¾ in. × 6 ft., with nut and washer, w't per hundred 1,025 lbs., per hundred 70 78

Prices on double eye rods on application.

HALLETT GUY ANCHORS.

No. 84E—Plain, 4 in. plates, with ⅜ in. × 4 ft. rods, w't 3 lbs. ..... each $0 52
No. 85E—Plain, 5 in. plates, with ½ in × 5 ft. rods, w't 5 lbs. ..... each .88
No. 86E—Plain, 6 in. plates, with ⅝ in. × 6 ft. rods, w't 9 lbs. ..... each 1.70
No. 88E—Plain, 8 in. plates, with ¾ in. × 8 ft. rods, w't 19 lbs. ..... each 3.46
No. 94E—Galv., 4 in. plates, with ⅜ in. × 4 ft. rods, w't 3 lbs. ..... each 60
No. 95E—Galv., 5 in. plates, with ½ in × 5 ft. rods, w't 5 lbs. ..... each 1 00
No. 96E—Galv., 6 in. plates, with ⅝ in × 6 ft. rods, w't 9 lbs. ..... each 1 90
No. 98E—Galv., 8 in. plates, with ¾ in × 8 ft. rods, w't 19 lbs. ..... each 3.80
No. 99E—Guy anchor wrenches. ..... each 4.00

The plate is forged, not cast, and will not crack. Sharpened so that it can be put into place with the least resistance possible. A guy rod sharpened on the end that goes into the ground with an eye on the other to connect with strand is placed through the plate.

The anchor is put into place with a No. 99E pipe wrench which is required to install the rod and is easily withdrawn after the anchor is placed.

GROUND RODS.

No. 615E—Plain, ⅜ in. × 5 ft., w't per hundred 175 lbs. ..... per hundred $12.10
No. 616E—Plain, ½ in. × 6 ft., w't per hundred 400 lbs. ..... per hundred 19.70
No. 617E—Galv., ⅜ in. × 5 ft., w't per hundred 190 lbs. ..... per hundred 17.60
No. 618E—Galv., ½ in. × 6 ft., w't per hundred 420 lbs. ..... per hundred 26 86

Pointed and drilled with ½ in. hole at top end.

DOUBLE ARMING BOLTS.

Double Arming Bolts, complete, with 4 Square Nuts and 4 Square Washers 2×2×⅛ in.

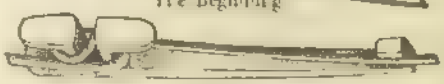
No. 1881E—Plain, ½×12 in., w't per hundred 142 lbs. ..... per hundred $12.10
No. 1883E—Plain ½×13 in., w't per hundred 148 lbs. ..... per hundred 12.26
No. 1885E—Plain, ½×14 in., w't per hundred 152 lbs. ..... per hundred 12.44
No. 1887E—Plain, ½×15 in., w't per hundred 158 lbs. ..... per hundred 12 66
No. 1889E—Plain, ½×16 in., w't per hundred 164 lbs. ..... per hundred 12.86
No. 1891E—Plain, ½×17 in., w't per hundred 170 lbs. ..... per hundred 13 08
No. 1893E—Plain, ½×18 in., w't per hundred 176 lbs. ..... per hundred 13 25
No. 1880E—Galv., ½×12 in., w't per hundred 142 lbs. ..... per hundred 15.18
No. 1882E—Galv., ½×13 in., w't per hundred 146 lbs. ..... per hundred 15.50
No. 1884E—Galv., ½×14 in., w't per hundred 152 lbs. ..... per hundred 15.82
No. 1886E—Galv., ½×15 in., w't per hundred 158 lbs. ..... per hundred 16.22
No. 1888E—Galv., ½×16 in., w't per hundred 164 lbs. ..... per hundred 16.60
No. 1890E—Galv., ½×17 in., w't per hundred 170 lbs. ..... per hundred 17.00
No. 1892E—Galv., ½×18 in., w't per hundred 176 lbs. ..... per hundred 17.32

Furnished without washers if so desired.

PENN WIRE TIGHTENERS.

The Device.

The Beginning



The Finish.

No. 888E—Plain, 3½ in. long, w't per hundred 6 lbs. ..... per hundred $6.00

The above cut explains itself. Takes up 10 in. slack and does not crack or injure the wire. To be left on wire.

TREE TRIMMERS.

No. 394E—18 in. over all, w't 2¾ lbs., each. $3 60
No. 395E—21 in. over all, w't 3¼ lbs., each. 4.40

Any length handle can be used.

No. 396E—18 in., detachable saw, w't 3 lbs. ..... each $4.60

Any length handle can be used.

TELEPHONE CONSTRUCTION MATERIAL.

POLE PLATFORMS.

No. 1430E—3×2 ft. 6 in., painted, w't 70 lbs.....each $10.00
No. 1431E—3×2 ft. 6 in., galvanized, w't 70 lbs.....each 16.00
No. 1432E—3×3 ft. 6 in., painted, w't 76 lbs.....each 12.00
No. 1433E—3×3 ft. 6 in., galvanized, w't 76 lbs.....each 18.00
This platform has two strong angle rails, an oak floor on an iron frame and two round rod braces. Recommended on important terminal poles where a good deal of work is done.

LINEMAN'S STAGES.

No. 161E—With guard and tool bag, w't 15 lbs.....each $6 00
This stage is safe, strong and portable, folds and packs in a small space, and gives lineman an opportunity to work with both hands.

MESSENGER CARS.

No. 1603E—Iron frame, wooden wheels and seat, w't 30 lbs.....each $10 00
These cars are used for riding messenger strands.

BUTT GUARDS AND POLE PROTECTORS.

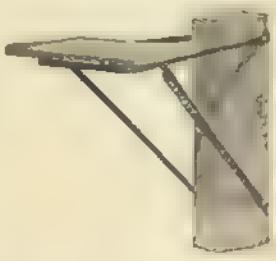
Butt Guards.

No. 515E—Plain, ¼×18×24 in., w't 23 lbs.....each $1.56
No. 516E—Galv., ¼×18×24 in., w't 23 lbs.....each 2 02
No. 517E—Plain, ¼×15×18 in., w't 14½ lbs.....each 1 23
No. 518E—Galv., ¼×15×18 in., w't 14½ lbs.....each 1 54
A steel plate bent into a half circle, which makes a substantial guard, strong enough to stand hard knocks, yet elastic enough so that it can be bent into place on any size pole.

Pole Protectors.

No. 510E—Galv., 2 in. wide by 4 ft. long, w't per hundred, 90 lbs...per hundred $12.00
Made of No. 28 sheet iron strips, clipped to point at both ends.

POLE SEATS.



No. 1425E—Plain, 8×24 in., wood seat, w't 40 lbs.....each $1 00
No. 1426E—Galv., 8×24 in., wood seat, w't 50 lbs.....each 1 2[illegible]
This seat consists of an angle iron frame, with two angle iron braces, absolutely safe, sufficient strength to hold four men.

No. 1427E—Plain, steel seat, w't 21 lbs., each.....$4 00
No. 1428E—Galvanized, steel seat, w't 21 lbs.....each 5.00
Made of angle iron with flat bars riveted to the ring for the seat, two braces running from both sides of the pole prevent tipping.

CABLE TROLLEYS.

No. 1870E—Arrow.....each $2 50
Used for installing heavy telephone cable and will carry any size cable up to four hundred pair.

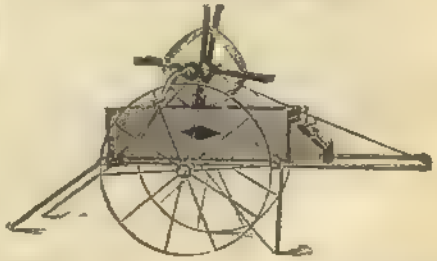
COMBINATION PAY-OUT REELS

No. 136E—Oak, ironed and bolted, w't 80 lbs.....each $16 00

DISTRIBUTING RINGS.

No. 125E—Plain, 25 wire frames, with braces, w't 70 lbs.....each $8 40
No. 225E—Galv., 25 wire frames, with braces, w't 70 lbs.....each 9 00
No. 150E—Plain, 50 wire frames, with braces, w't 90 lbs.....each 14 50
No. 250E—Galv., 50 wire frames, with braces, w't 90 lbs.....each 16 00
Frames can be put up after the poles are set and metallic pins added as occasion requires.
Insulators not included with rings.

LINEMEN'S CARTS.



No. 3811E—Complete with reel, w't 140 lbs each.....$27 00
No. 3812E—Without reel, w't 100 lbs each 20 00
A convenient cart for handling telephone wire.

AMERICAN CUT GLASS.

WINE AND WHISKEY SETS.

No. 678—Cutting No. 143, whiskey set . . . . per set $20.
No. 582—Decanter, 1 quart . . . . each
No. 462—Whiskey glasses . . . . per half dozen 10.00
No. 660—Plateau, diam. 12 in . . . . each 3.13

No. 676—Plymouth, wine set . . . . per set $34.38
No. 583—Decanter, 1 quart . . . . each
No. 443—Wine glasses . . . . per half dozen 15.00
No. 660—Plateau, diam. 12 in . . . . each 3.13

ICE TUBS.

No. 727F—Cutting No. 185, 7 in . . . . each $12.50

WHISKEY JUGS.

No. 542—Diadem, 1 qt., each $16.25

DECANTERS.

No. 662—1 quart, cutting No. 143 . . . . each $9.38

WHISKEY GLASSES.

No. 462—Plymouth, per doz $22.50

LAPIDARY KNIFE RESTS.

No. 910—4⅜ in., per dozen. $30.00
No. 911—5¼ in., per dozen. 37.50

WHISKEY BOTTLES.

No. 647—1 quart, cutting No. 3. . . . . each $18.75

PUNCH SETS.

No. 138—Cutting No. 136, ... per set $111.50
No. 139—Punch bowl, 14 in . . . . each 70.00
No. 453—Punch cups . . . . per dozen 25.00
No. 215—Plateau, 18 in. . . . . each 11.50
No. 136—Cutting No. 136, with 12 in. bowl . . . . per set 86.50

FRUIT BOWLS.

Cutting No. 166.
No. 250—7 in. . . . . each $ 9.25
No. 251—8 in. . . . . " 21.25
No. 252—9 in. . . . . " 28.75

FLOWER CENTERS.

Cutting No. 2.
No. 381—Diam. 10 in. . . . . each $15.75
No. 382—Diam. 8 in. . . . . " 27.50
No. 383—Diam. 11 in. . . . . " 47.50
No. 384—Diam. 14 in. . . . . " 70.00

AMERICAN CUT GLASS.

SPOON HOLDERS.

No. 795—Lenox.....each $5 00

FERN DISHES.

No. 990—Cutting No. 149, 6 in....each $ 8.75
No. 992—Cutting No. 149, 8 in.... " 15.00

No. 991—Cutting No. 143, 8 in....each $15.63

No. 993—Cutting No. 149, 7 in.....each $8 75

CELERY OR VASES.

No. 615—Cutting No. 143.....each $10 63

BUD VASES.

No. 891. No. 890

No. 891—Bud vase or toothpick holder, cutting No. 148.....each $2 50
No. 890—Bud vase or toothpick holder, cutting No. 147.....each 2 50

MUSTARDS AND VIOLET BALLS

No. 930 No. 703

No. 930—Mustard cutting No. 1 each $5 75
No. 703—Madison violet ball, 3 in... " 2 50
No. 704—Madison violet ball, 4 in... " 3 75
No. 215—Plateau 5 in..... " 1 75
No. 215—Plateau 5½ in..... " 2 00

CANDLESTICKS AND VIOLET VASES.

Candlestick. Violet Vase

No. 966—Cutting No. 126, 6 in. each $6 88
No. 967—Cutting No. 126, 8 in. " 8 75
No. 968—Cutting No. 126, 10 in. " 10 63
No. 893—Cutting No. 148 " 3 75

LEMONADE OR PUNCH GLASSES.

No. 473 No. 453

No. 473—Albany per dozen $27 50
No. 453—Cutting No. 136 " 25 00

No. 463—Plymouth per dozen $25 00

No. 463

FINGER BOWLS.

No. 454. No. 446

No. 454—Adams.....per dozen $37 50
No. 446—Plymouth .. " 37 50

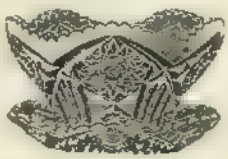
SHERBET GLASSES.

No. 464—Barclay, per doz. $33.75

BELLS.

No. 915—Cutting No. 2, each $3 75

MAYONNAISE SETS.

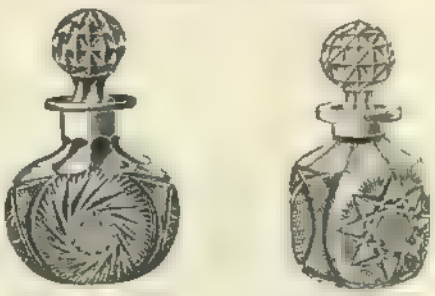


No. 810-811F—Cutting No. 200...per set $6 25

DISHES.

No. 286F—Cutting No. 197, 11¼×6½ in. each..... $13 75

COLOGNE BOTTLES.



Cutting No. 143 Cutting No. 146

No. 970—Cutting No. 143, 4 oz each $ 5 00
No. 971—Cutting No. 146, 6 oz " 5 00
No. 972—Cutting No. 143, 8 oz " 7 00
No. 973—Cutting No. 146, 10 oz " 8 75
No. 974—Cutting No. 130, 4 oz " 6 00
No. 975—Cutting No. 130, 6 oz " 7 00
No. 976—Cutting No. 130, 8 oz " 8 63
No. 977—Cutting No. 136, 10 oz " 10 00

CIGAR JARS.

No. 920-Madison for 50 cigars each.....$20.00

AMERICAN CUT GLASS.

SUGARS AND CREAMS.

No. 613—Cutting No. 111. ..each $2 81

No. 633—Cutting No. 111.. .....each $2.81

No. 615—Cutting No. 1[illegible] .....each $3.13

No. 635—Cutting No. 143.. .....each $3 13

No. 611—Cutting No. 167.. . . . ...each $3 75

No. 622—Cutting No. 167.... .....each $3 75

No. 613—Lenox ....each $3 75

No. 633—Lenox ....each $3 75

No. 600F—Cutting No. 185.. each $4 00

No. 620F—Cutting No. 185 . .... each $4 00

No. 611—Cutting No. [illegible] each $5.63

No. 622—Cutting No. 136.....each $5 63

No. 614—Lenox..... each $5 63

No. 634—Lenox..... each $5 63

No. 611—Adams each $[illegible]5

No. 622—Adams.... each $6 25

No. 606—Cutting No. 107. ..... each $7 50

No. 626—Cutting No. 107.. . . ..each $7 50

No. 611—Peerless . . . . each $12 50

No. 622—Peerless.....each $12 50

No. 616—Cutting No. 166 .... each $5 00

No. 636—Cutting No. 166.....each $5 00

ROUND PLATEAUS.

No. 1000—[illegible] each $3 75
No. 1000—[illegible] 5.00
No. 1000—[illegible] 6 25
No. 1000—14 [illegible] " 8 13

AMERICAN CUT GLASS.

CRUETS.

No. 772.

No. 771.

No. 779.

No. 772—Revere.....each $3 75
No. 771 Barclay..... " 4.17
No. 779—Cutting No. 3..... " 5.00

No. 774

No. 773.

No. 778.

No. 774—Cutting No. 177.....each $3 75
No. 773—Albany..... " 5.00
No. 778—Cutting No. 3..... " 5 32

CLARET JUGS.

Nos. 822 and 821.

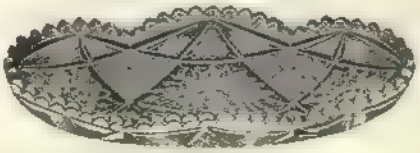
No. 535.

No. 822—Plymouth, 3 pts.....each $25 00
No. 821—Plymouth, 2 qts..... " 17 50
No. 535—Cutting No. 36, 3 pts..... " 18 75

CELERY DISHES.

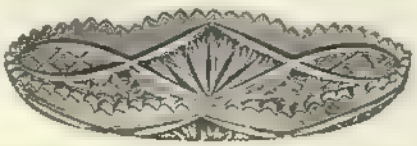
No. 513—Cutting No. 143, 11 in.....each $5 00

CELERY DISHES.



No. 513—Cutting No. 132, diam. 11 in.....each $0 88

No. 504—Plymouth, diam. 12 in.....each $3.13



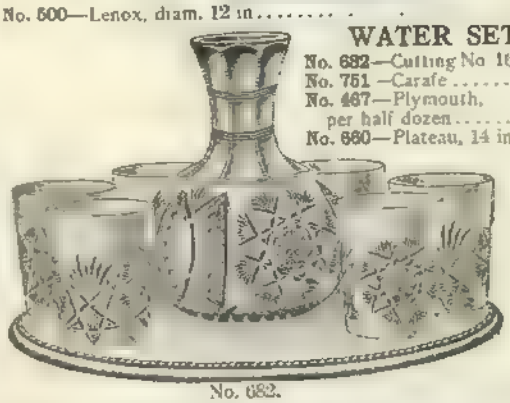
No. 513—Warren, diam. 11 in.....each $5 63

No. 512—Plymouth, diam 11 in.....each $7 50

No. 500—Lenox, diam. 12 in.....each $12.50

WATER SETS.

No. 682—Cutting No 169 per set $20 63
No. 751—Carafe.....each 7 50
No. 467—Plymouth, tumblers per half dozen..... 9 38
No. 660—Plateau, 14 in.....each 3 75



No. 682.

No. 674—Cutting No. 142 per set $21.25
No. 528—Pitcher, each 11.25
No. 459—Tumblers, per half dozen.. 6 25
No 660—Plateau, 14 in.....each 3.75

No. 674.

AMERICAN CUT GLASS.

WATER PITCHERS.

No. 528—Cutting No. 142, 3 pints, each $11 25

No. 529—Cutting No. 172, 2½ pints, each $8.13

No. 528—Cutting No. 125, 3 pints, each $12 50

No. 535—Cutting No. 126, 3 pints..each $13.75

WATER PITCHERS..

No. 538—Cutting No. 153, 2½ pints, each $8.75

No. 535—Cutting No. 124, 3 pints..each $17 50

VASES.

Nos. 855 to 859

Berlin.

No. 855—Height 8 in., each, $7 50
No. 856—Height 10 in., each, 10 00
No. 857—Height 12 in., each, 13 13
No. 858—Height 14 in., each, 18 25
No. 859—Height 16 in., each, 21 25

Nos. 375 to 378

Cutting No. 164.

No. 375—Height 8 in.... each $4.06
No. 376—Height 10 in....each 5.63
No. 377—Height 12 in. each 7 50
No. 378—Height 14 in. each 10 00

VASES.

Cutting No. 129.

No. 873—Height 8 in.... each $4 38
No. 874—Height 10 in.... each 6 25
No. 875—Height 12 in.... each 8 13

Nos. 873 to 875

No. 390

No. 390—Cutting No. 174, 10 in. each $9 38

Cutting No. 126.

No. 861—Height 8 in. each $6 88
No. 862—Height 10 in. each 9 38
No. 863—Height 12 in. each 13.13
No. 864—Height 14 in. each 16 88

Nos. 861 to 864.

Nos. 897 and 898.

No. 897—Cutting No. 182, 10 in., each $ 8.13
No. 898—Cutting No. 182, 12 in., each 11 88
No. 887—Cutting No. 181, height 13 in. each 16 88

No. 887.

AMERICAN CUT GLASS.

BOWLS.

No. 101—Cutting No. 161
8 in . . . . . each $17 50
No. 102—Cutting No. 161,
9 in . . . . . each 22 50
No. 103—Cutting No. 161
10 in . . . . . each 30 00

No. 151—Warren, 8 in each $10 00
No. 152—Warren 9 in " 12 50

No. 101—Plymouth, 8 in.,
each $11 25
No. 102—Plymouth, 9 in.,
each 15 00
No. 103—Plymouth, 10 in.,
each 20 00

No. 101—Cutting No. 13[illegible]
8 in each $14 [illegible]
No. 102—Cutting No. 13[illegible]
9 in. . . . . each 18 [illegible]

NAPPIES.

No. 201 Melrose 8 in.. each $7 20
No. 202 Melrose 9 in... " 9 38

No. 200F—Cutting No. 181
7 in . . . . . each $3 75
No. 201F—Cutting No. 181,
8 in each [illegible]

No. 201 Cutting No. 11[illegible]
8 in each $[illegible]2

No. 200—Cutting No. 143
7 in . . . . . each $4 38
No. 201—Cutting No. 143
8 in each [illegible]
No. 202 Cutting No. 14[illegible]
9 in each [illegible]

CARAFES OR WATER BOTTLES AND TUMBLERS.

No. 750—Revere water bottle . each $6 25

No. 458—Revere, tumbler. . . . . per dozen $21 25

No. [illegible]

No. 458.

CARAFES OR WATER BOTTLES AND TUMBLERS.

No. 751—Water bottle, cutting No. 121
each. $5 63

No. 459—Tumbler, cutting No. 121 per dozen $15 63

No. 459—121

No. 751—121

No. 751—Water bottle, cutting No [illegible]
each $6 88

No. 459—Tumbler, cutting No. 142, per dozen $12 50

No. 751—143.

No. 459—142

No. 751—Adams, water bottle each $9 38

No. 458—Adams tumbler. . per dozen $30 00

No. [illegible] Adams

No. 751

No. 752 Murray water bottle each $8 75

No. 458 Murray, tumbler per dozen $25 00

No. 752

No. [illegible] Murray

No. 750—Warren, water bottle. . each $6 25

No. 458—Warren tumbler. . . per dozen $20 00

No. [illegible]

No. 750

AMERICAN CUT GLASS.

OLIVE DISHES.

No. 304—Cutting No. 100, 6 in..... each $3.75

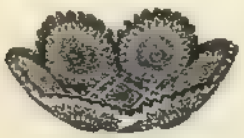
No. 337F—Cutting No. 185, 7 in. ..each $3 50

No. 338F—Cutting No. 185, 6 in. . each $3 50

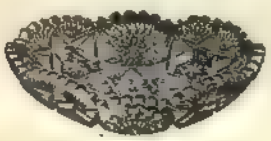
No. 234—Plymouth, 6 in. . ..each $4 38

No. 300—Plymouth, 7 in. each $4.06

No. 305—Plymouth, 8 in. .. ..each $5.00



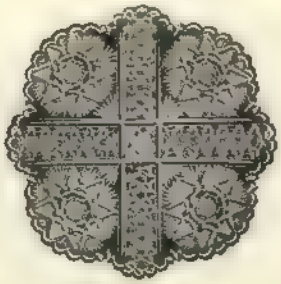
No. 310—Star, 6 in. .....each $8 44



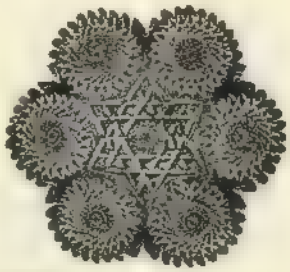
No. 339F—Cutting No. 185, 6 in. ...each $3 50

No. 336—Constellation, 7 in each $5.00

PLATES.



No. 780—Lenox, 7 in. .....each $7.50



No. 760—Star, 7 in. each $10 00

No. 780—Milton, 7 in . ... each $4 17

BOWLS.

No. 100F—Cutting No. 180, 7 in.... each $4 06
No. 101F—Cutting No. 180, 8 in..... " 5.63

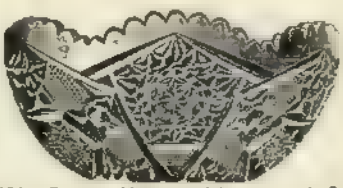
No. 100—Warren, 7 in. ..each $5 00
No. 101—Warren, 8 in " 6 25
No. 102—Warren, 9 in. " 8 75

BOWLS.

No. 100—Cutting No. 143, 7 in.... each $5 32
No. 101—Cutting No. 143, 8 in " 6 88
No. 102—Cutting No. 143, 9 in. " 9 38

No. 169—Plymouth, fancy, 7 in each $ 5 63
No. 170—Plymouth, fancy, 8 in 7 82
No. 171—Plymouth—fancy, 9 in. 10 00

No. 101—Cutting No. 150, 8 in. . each $ .. 00
No. 102—Cutting No. 150, 9 in. . " .. 75



No. 101—Cutting No. 165, 8 in. . .each $ 7.50
No. 102—Cutting No. 165, 9 in. . " 10 00

No. 101—Melrose, 8 in ..... each $ 8 75
No. 102—Melrose, 9 in . . " 11 88
No. 103—Melrose, 10 in . .. " 16.88

No. 101—Cutting No. 166, 8 in.. .each $ 9 38
No. 102—Cutting No. 166, 9 in. " 12 50

AMERICAN CUT GLASS.

STEM WARE.

No. 440—Plymouth, goblet, per dozen $45.00

No. 447—Plymouth, champagne, hollow stem, per dozen .. $40.00

No. 442—Plymouth, claret, per dozen $32.50

No. 409—Plymouth, cocktail, per doz. $2.50

No. 443—Plymouth, wine, per dozen .. $30.00

No. 444—Plymouth, sherry, per dozen $30.00

No. 445—Plymouth, cordial per dozen ... $27.50

COMPORTS.

EACH
No. 269—Plymouth, 6 in., $13.13
No. 270—Plymouth, 8 in., 17.50
No. 271—Plymouth, 10 in., 25.25

No. 258—Cutting No. 170, diam. 6 in., each $8.13

No. 234—Plymouth, 7½ in. each $11.25

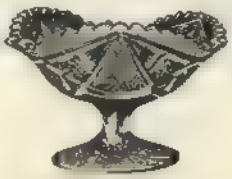
No. 272—Cutting No. 120, 6¾ in. ..each $10.00

No. 255—Cutting No. 149, 6 in. .....each $6.25

COMPORTS.

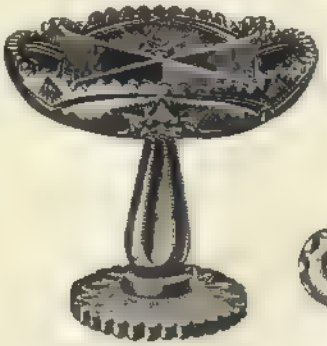
No. 256—Cutting No. 149, 4½ in. each $5.00

No. 263—Cutting No. 118, 6 in. each $10.00



No. 262—Cutting No. 118, 5½ in. each $8.13

FOOTED RELISH DISHES.

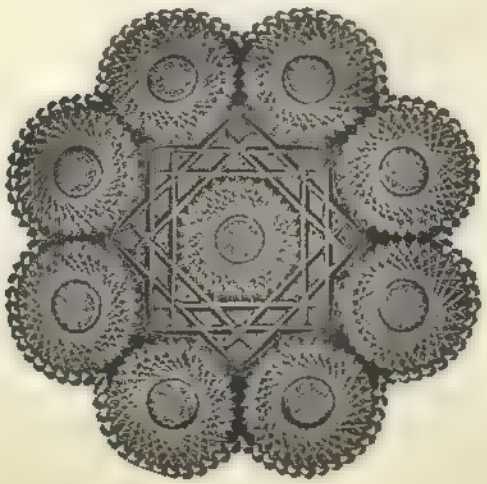


No. 291—Cutting No. 136, diam. 7 in. .....each $13.75
No. 292—Cutting No. 136, diam. 8 in. ..... each 18.13
No. 293—Cutting No. 136, diam. 9 in. ..... each 22.50

RELISH DISHES.

No. 287—Cutting No. 143.....each $ 8.75
No. 288—Cutting No. 143..... " 11.88
No. 283—Cutting No. 143 ..... " 15.00

ICE CREAM PLATES.



No. 716—Star, diam. 13 in.... each $32.50
No. 717—Star, diam. 15 in.... " 42.50

ICE CREAM TRAYS.

No. 712—Milton, size 8×12 in. . each $5.75

No. 712—Constellation, size 10×12 in.....each $20.00

FRENCH AND AMERICAN CUT GLASS.

FRENCH SALTS AND PEPPERS

No. 109

No. 107

No. 109—2¾ × 1¼ in
No. 107— " "
per dozen $12 00
" 12 00

No. 102

No. 101

No. 102 4 × 2 in
No. 101—3 × 1¼ in
per dozen $12 00
" 12 00

These are genuine cut glass peppers and salts of elaborate and handsome design, with solid silver screw cap

ONE DOZEN SALTS IN A BOX. ONE DOZEN PEPPERS IN A BOX, NOT ASSORTED.

AMERICAN SALTS AND PEPPERS.

Latest style heavy sterling silver safety screw tops, guaranteed 925-1000 fine, fitted with patent shakers.

No 760½—2 × 1¼ in . . per set $2 80
No 762½— " " " . . " 2 60

No 637½

No 768½

No 637½— " " in
No 768½— " " in
per set $
"

No. 754½.

No 680½.

No. 754½—3½ × 1⅞ in. . . . . per set $5 00
No. 680½—3¼ × 1½ in. . . . . " 4 50

ONE SET IN A PARTITIONED BOX, A SET CONSISTS OF ONE SALT AND ONE PEPPER.

AMERICAN SALTS AND PEPPERS.

No. 408½

No 702½,

No. 408½—3 × 1¾ in
No. 702½—3¼ × 1½ in
per set $5 10
" 7 80

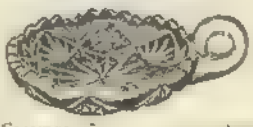
No. 646½

No 698½,

No. 646½— " " in
No. 698½— " " "
per set $6 30
" 8 20

ONE SET IN A PARTITIONED BOX, A SET CONSISTS OF ONE SALT AND ONE PEPPER.

HANDLED NAPPIES.

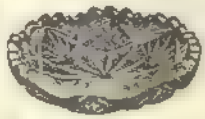


No. 230—Clinton, 5 in
No. 231—Clinton, 6 in
per dozen $21 00
" 28 75

No. 230—Milton, 5 in
No. 231—Milton, 6 in
per dozen $27 50
"

No 230—Constellation, 5 in. per dozen $41 25
No. 231—Constellation, 6 in., " 48 75

SAUCE DISHES.

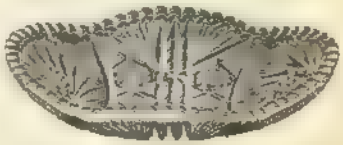


No 740—Cutting No. 5 in. per dozen $22 50
No 741—Cutting No. 6 in. " 28 75
No. 740—Marlborough, 5 in. " 27 50
No. 741—Marlborough, 6 in. " 32 75

No. 740—Cutting No. 111, 5 in. per dozen $31 00
No. 741—Cutting No. 113, 6 in., per dozen 37 50
No. 740—Constellation, 5 in., per dozen 41 25
No. 741—Constellation, 6 in., " 48 75

SPOON TRAYS.

No. 790—Cutting No. 105, 8 in. each $3 45



No. 796F—Cutting No. 186, 8 in.. each $3 13

No. 790—Warren, 7½ in. each $2 [illegible]

No. 792—Lenox, [illegible] in. each $2 [illegible]

No. 793—Cutting No. [illegible] in. each $3 75

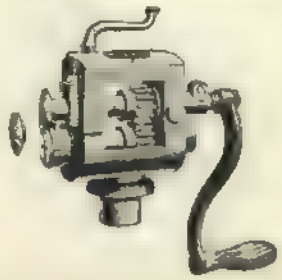
No. 793—Plymouth, 8 in. each $5 63

TINNERS' MACHINES.

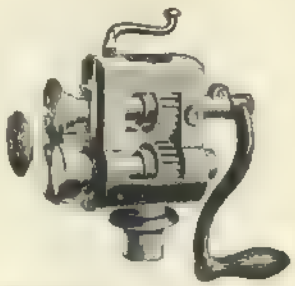
COLUMBIAN WIRING.

With Standard, w't 33 lbs. .....each $12 00

COLUMBIAN BURRING.

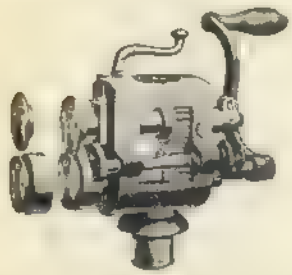


Small, with standard, with extra upper face, w't 22 lbs.....each $8.50

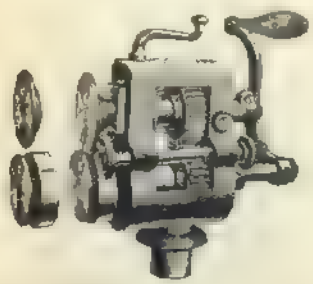


Large, with standard, with extra upper face, w't 26 lbs.. ... .. each $ 00

COLUMBIAN TURNING.

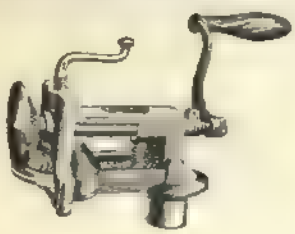


Small, with standard, with extra upper and lower face, w't 26 lbs.. each $10 00



Large, with standard, with extra upper and lower face, w't 32 lbs.....each $10 25

COLUMBIAN SETTING DOWN.



With standard, w't 21 lbs . each $9 75

Columbian machines have a solid frame, are strong and durable, and are made with duplicate parts — that is, the corresponding parts of the same machine are interchangeable. By a patented arrangement the upper journal boxes are so constructed that the rolls readily pass over seams without stopping the machine or injuring the work. These machines can be used on metal as thick as No. 24 gauge

STOW'S ENCASED SETTING DOWN.

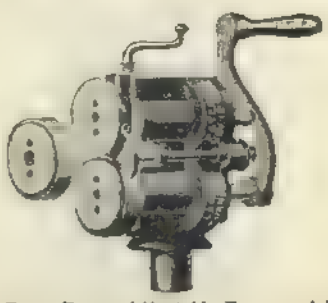
With Standard, w't 21 lbs .....each $9 75
Without Standard, w't 10½ lbs..... " 9 00

STOW'S ENCASED WIRING.

With Adjustable Boxes and Duplicate Parts.

With Standard, w't 30 lbs.....each $14 00
Without Standard, w't 18 lbs..... " 1 25

STOW'S ENCASED TURNING.



With Extra Faces, Adjustable Boxes and Duplicate Parts.

Small, with standard, w't 24 lbs... each $11 25
Small, without standard, w't 13½ lbs " 10 50
Large, with standard, w't 29 lbs..... " 11.50
Large, without standard, w't 18 lbs. " 10 75

STOW'S ENCASED BURRING.

With Extra Upper Face.

Small, with standard, w't 21 lbs....each $10 00
Small, without standard, w't 10½ lbs. " 9 25
Large, with standard, w't 24 lbs " 10 50
Large, without standard, w't 13 lbs 9 75

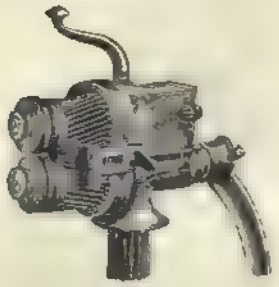
STOW'S IMPROVED MACHINE STANDARDS.

Improved Machine Standards, w't 11 lbs.
each $1 00

These standards are so made as to be used on any bench, varying in thickness from one to three and one-half inches. The necessity of cutting holes in the bench is obviated, and the tinner is enabled to use a machine in any part of his shop most convenient to his work. The wrench is always attached to the standard. These standards are also adapted to Raymond's machines.

TINNERS' MACHINES.

CRIMPING.

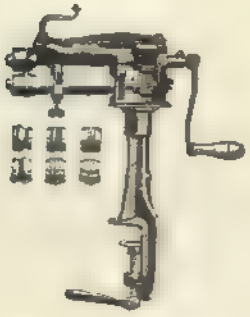


Packham's, for stove and conductor pipe, with standard, w't 24 lbs.....each $10 00

No. 7—Stove pipe crimper and beader complete with standard, w't 45 lbs., each.... .. .. $12 00

These Machines are designed to facilitate the making and putting together of metal pipe of different diameters. They crimp and contract the ends of stove and conductor pipe, so that the lengths are put together easily. They have steel rolls and are adapted to material as thick as No. 22 gauge.

BEADING.



No. 4, With Standard.

Stow's Patent, with Adjustable Boxes and Duplicating Parts.

No. 4—6 in., with 4 pairs of rollers and rotary standard w't 35 lbs....each $19 75
No. 5—4 in., for tin, with 5 pairs of rollers and rotary standard, w't 20 lbs each 16.75

The 4 pairs of rollers accompanying the No. 4 beader are the single bead, ogee bead, small triple bead and triple coffee pot bead

These Machines are adapted to material not thicker than No. 26 gauge. All parts are made to standard gauges so that any piece can be replaced by designating number of machine and the part wanted.

BEADING.

No. 1, With Standard.

Improved, with 3 Pairs Rollers and Rotary Standard.

No. 1—13 in., w't 117 lbs. .....each $32.25
No. 2—10 in., w't 110 lbs. ..... " 31 25
No. 3—7½ in., w't 81 lbs. ..... " 26 25

The impressions given are 1⅛ in., 1 in., ⅞ in., ¾ round, ogee coffee pot, cullender, elbow, astragal, and any form required

The rod in front is designed as a "guide rest," on which the cylinder or vessel may rest while forming the bead, and revolves without guidance by the hand.

The machine is made with interchangeable parts, and is heavy enough to bead No. 20 iron.

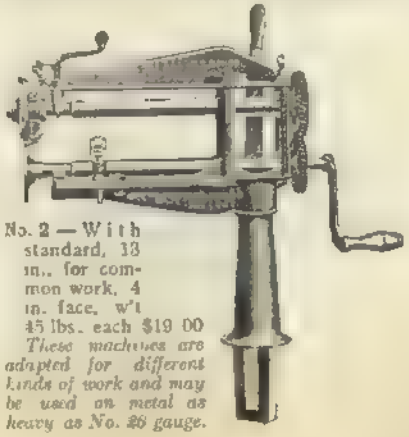
STOW'S DOUBLE SEAMING.

No. 5
With Eleven Discs.

No. 5—With setting down attachment, w't 115 lbs.....each $28 00
No. 10—Without setting down attachment w't 108 lbs..... each 24 00
Extra Discs ..... " 1 25
Extra Heads . " 2 50

The Setting Down attached to No. 1 will seal down any work that can be double seamed on the machine. It works rapidly and accurately, and an inexperienced workman can use it without difficulty. It is also intended to be used on work that does not require to be double seamed, and to a large extent will take the place of the Setting Down in the set of machines. Adapted to material as thick as No. 26 gauge.

MOORE'S DOUBLE SEAMING.



No. 2—With standard, 13 in., for common work, 4 in. face, w't 45 lbs. each $19 00

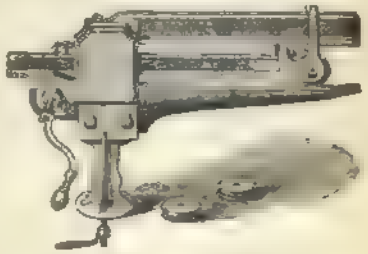
These machines are adapted for different kinds of work and may be used on metal as heavy as No. 26 gauge.

ENCASED GROOVING.

No. 1—For heavy work 20 in., with rotary standard, w't 76 lbs. . . each $13.50
Extra Standards . . . . . " .75

May be used on metal as thick as No. 20 gauge.

BRASS MOUNTED GROOVING

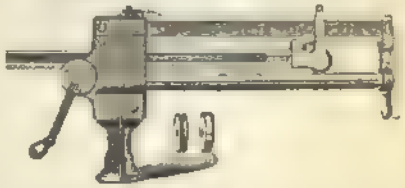


With Steel Bar and Milled Horn.

No. 01—For heavy work, 20 in., with standard, w't 78 lbs . . . each $18 50
Extra Standards. . . . " .75

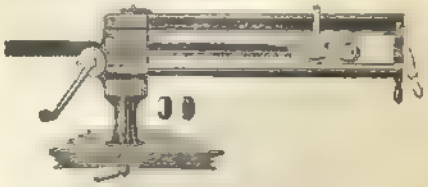
May be used on material as thick as No. 24 gauge

IMPROVED GROOVING.



No. 120—30 in., rolls ⅜, ¼ and ⅛ in., with square supporting bar, with stand, w't 110 lbs.....each $18 00

Operator can observe his work during the whole process of grooving. Seams can be formed on the inside or outside of the cylinder and it may be used on all vessels not less than two inches in diameter. Four rolls are put up with each machine, one each with groove, and one flattening roll. When the rack is thrown back to the standard the grooving roll is lifted from the lower bar and can be easily released for the purpose of changing the rolls. These groovers are adapted to metal not heavier than No 22 gauge.



With Square Supporting Bar.

No. 220—40 in., with Kennedy Attachment, grooves work 30 in. in length, with stand, w't 130 lbs.....each $25 00

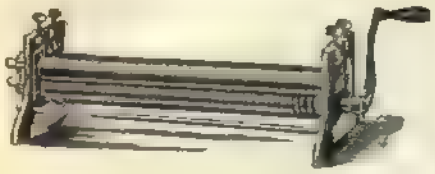
Kennedy's Patent Attachment or following roll is intended for flattening the seams

This Attachment enables the workman to groove and flatten the seams in one operation.

These groovers have the same size rolls as above and also flattening roll.

TINNERS' MACHINES AND RULES.

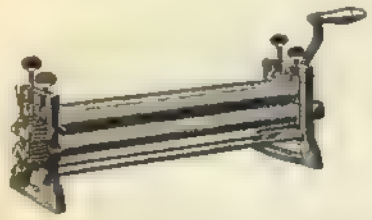
FORMING MACHINES.



Stove Pipe Former, 30 in. Long.

No. 2—1¾ in. rolls, w't 105 lbs....each $18 00
No. 1—2 in. rolls, w't 130 lbs..... " 10.00

These Formers are made with steel rolls. They are turned, finely finished, and are free from indentation and imperfections.



Patent Stove Pipe Former, with Compensating Gear, 30 in. Long.

No. 11—1¾ in. rolls, w't 100 lbs each $20.00
No. 12—2 in. rolls, w't 123 lbs. " 20 00

No. 100—GRANNIS', patent slip roll stove pipe former, with compensating gear, 2 in. rolls, 30 in. long, w't 125 lbs, each $22.00

These Machines are much more easily adjusted, and can be set for forming any desired size of cylinder in much less time than is required to set others. They are made with Slip Rolls, so that small work can be readily taken from the end after it has been formed.

EAVE TROUGH END FORMERS.

The Tool.

The Work

No. 6—BISHOP'S, cast iron, five sizes, 3½, 4, 4½, 5 and 6 in. trough, w't 4 lbs..each $1 50

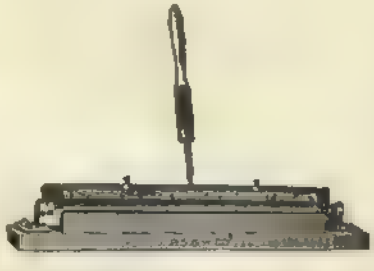
For closing end of eave trough in corrugations as shown in illustration. An end can be closed much quicker, neater and cheaper than in any other way. A cut trough can have an end put in both parts, preventing waste. Old work can be closed from a ladder. The frost will not burst the end out. The forms are light enough to use anywhere the work is to be done, and are made in two sizes, on which all sizes from 3 to 6 in. trough can be closed

TIN FOLDING MACHINES.

No. 152—STOW'S patent, adjustable, 20¾ in., will turn locks from ⅛ to 1 in., w't 80 lbs.....each $30 00
No. 154—STOW'S, patent, adjustable 30 in., will turn locks from ⅛ to 1 in w't 155 lbs.....each 40 00
May be used on material as thick as No. 22 gauge.

SHEET IRON FOLDING MACHINES.

No. 1—WRIGHT'S, 30 in., improved, will turn locks ⅛ and ¼ in., w't 75 lbs. each $12 00
No. 12—WRIGHT'S, 30 in., improved, will turn locks ⅛, ⅛, ½ and ⅝ in., w't 75 lbs. . . each 17 00
As now made, this machine will turn locks of different widths and weight of sheet. May be used on material as thick as No. 24 gauge.



No. 30—30 in., wood bottom, w't 56 lbs., each.....$10.00

This folder is constructed with a mill bar and fits the gauge accurately. Adapted to material as thick as No. 22 gauge.

TINNERS' RULES AND STRAIGHT EDGES.

Front.

Back.

No. 5—Plain polished, 36 in. long, w't 1¾ lb.....each $3 50
No. 6—Nickel plated 36 in. long, w't 1¾ lb.....each 4 00

Laid off on one side with two rows of figures, the first like an ordinary steel square, by eighths and inches up to three feet. The second is a line of circumferences divided into 113 equal parts; each of these divisions is again sub-divided into 8 equal parts, the large divisions representing an inch to a scale and sub-divisions an eighth of an inch. Therefore, against any diameter the circumference in this line to a scale in inches and eighths of inches can be found.

The reverse side of rule gives dimensions of measures and cans. The first two tables are for flaring measures. 1st. Liquid measures, 1 to 5 gal. 2d Dry measures, 1 to 2 bu., giving diameter of top and bottom, and height of each size and kind.

Third table is for cans with pitch or cone tops, 1 to 10 gal., giving diameter of top and body, and compass mark for striking bread

Fourth table is for flat top cans from 100 to 200 gal. (thirty-one different sizes), giving height and diameter.

Fifth table is for dry measure, from 1 qt. to 8 bu., giving height and diameter.

MAGIC PATTERN RULES.

No. 7—LUPKIN'S, nickel plated steel bar, length 4 ft. ⅞ in., square, with two slides, trammel points and flexible steel ribbon, with pattern chart mounted on linen, 19×23 in., in hinged wooden case, w't 7 lbs.....each $5 00

The Magic pattern rule is marked in circumference inches on the front, and in inches and eighths on the back. The two slides have set screws into which trammel points are fastened. For laying out elbow patterns, the left hand slide is fastened to the end of the bar by the set screw, and the right hand slide is set according to what diameter elbow is wanted. A flexible steel ribbon on the top of bar is then raised to the required height, according to angle of elbow wanted; one glance at the chart giving such height necessary according to the elbow required.

TINNERS' TOOLS.

STOW'S IMPROVED SQUARING SHEARS.

For Cutting Sheet Metal.

No. 120—With frame, for No. 20 iron cuts 22 in., w't 350 lbs.....each $37 00
No. 130—With frame, for No. 18 iron cuts 31 in., w't 450 lbs.....each 57 00
No. 136—With frame, for No. 18 iron, cuts 37 in., w't 650 lbs.....each 82 00

These Squaring Shears are made with top and side extension tables and Patent Quick-Acting Back Gauge. They are also provided with front gauges and front extension arms as shown above. The springs are arranged with a set screw for regulating the tension and compensating for wear. Every squaring shear when it leaves the factory, will cut wet tissue paper the whole length of the blade.

HULL'S ACME SQUARING SHEARS.

For Cutting Sheet Metal.

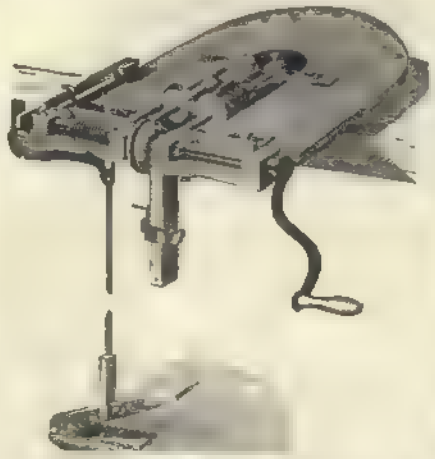
No. 2—ACME, with frame for No. 18 iron, cuts 31 in., w't 450 lbs.....each $50 00

They are arranged with table, back and front gauges, for squaring, stripping and cutting at any desired angle without necessity of marking the sheets.

WAUGH'S CIRCULAR SHEARS.

No. 1—For tin, with 1 pair discs and cutters, will cut circle 2¼ to 15 in. in diameter, w't 60 lbs.....each $33.00
No. 2—For tin, with 1 pair discs and cutters, will cut circle 2¼ to 20 in. in diameter, w't 70 lbs.....each 38.00

NEWTON'S CIRCULAR SHEARS.



With Two Pairs of Discs, One Pair Each 2⅜ and 6¾ Inches in Diameter.

Newton's, w't 125 lbs.....each $22 00

Will cut circles from 3 to 14 in. in diameter from material not thicker than No. 26 gauge.

COMBINATION SHEARS AND PUNCHES.

No. 1—4½ in. cut, will punch ⅛ in. iron, w't 100 lbs.....each $16 00
No. 2—5½ in. cut, will punch ⅛ in. iron, w't 120 lbs.....each 20.00

These Machines are suitable for both cutting and punching metal. They may be used for cutting ⅛ inch iron, and ⅛ and ¼ inch narrow bars. The No. 1 will punch the centre of a circle 5¼ inches in diameter and the No. 2, 5½ inches. Four Punches are put up with No. 1, viz., ⅜, ⅛, ¼ and ⅛ inch. Five Punches are put up with No. 2, viz., ⅜, ⅛, ¼, ⅛ and ⅜ inch.

MARVEL PORTABLE PUNCHES.

Made Entirely of Steel.

No. 20—Cuts ¼ in. hole in ¼ in. stock, w't 16 lbs.....each $20 00

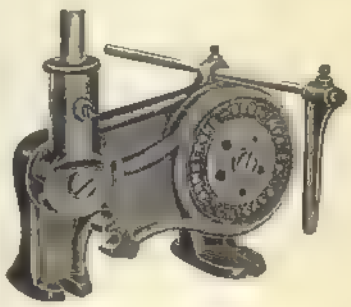
A powerful, well made tool. Needed in every industry wherever metal is used. Easily carried in one hand. It punches sheets, bars, angles circles, etc. A splendid tool for punching a number of holes around the edges of sheets. Will punch a hole ⅜-inch from inside corner of angle iron to center of punch. If desired to use stationary on a bench, it can be clamped in any common bench vise, the vise jaws clamping the frame between the two lower nuts, the two nuts acting as a perfect brace.

MARVEL SPLITTING SHEARS.

No. 1—4 in. blades, cuts sheets ⅛ in. thick or less, any length or width, w't 55 lbs.....each $28 00

This machine is well made and very strong. The upper shear bearing is on an angle, and thus lessens the strain on the machine. The stripper, or hold down, is so placed that a line on material can be easily followed. It shears emerging lever either way.

MARVEL ROD CUTTERS.



No. 8—Cuts rods ⅜, ⅜, ⅜, ⅜, ½ in. and intermediate sizes, complete with lever, gauge and gauge rod; w't 12 lbs., each.....$12 00

Cutting Dies have round openings of correct size to cut off rods and wire within the capacity of the machine, which insures good work with ends round and true.

The Marvel Rod Cutter is so arranged as to bring the lever at a convenient height from the bench, and the gearing is so placed as to remove all danger of crushing the operator's hand. The round Steel Lever can be instantly removed when desired.

The center of leverage is down low which lessens the pull on the bench. The neat Gauge is very handy when cutting a number of pieces of the same length.

TINNERS' TOOLS.

'REV-O-NOC" STRAIGHT TINNERS' SNIPS.

Drop Forged, Steel-Laid.

Nos.	36	37	38	39
Full length.	15½	14¼	13	12¾ in.
Cut.	4½	4	3½	3 in.
Weight	3¼	2¼	1½	1 lbs.
Per pair.	$3 00	2 50	2 00	1 50

Nos.	40	41	42
Full length	11¼	10	8½ in.
Cut	2½	2¼	2 in.
Weight	1	¾	⅝ lb.
Per Pair	$1 40	1 25	1 00

"Rev-o-noc" Snips are forged from one solid piece of steel and a shear steel plate of special quality is laid over the entire surface of the blade and under the bolt making a steel bearing. Each pair is hardened in water and tempered by patent method, producing a snip that is unsurpassed.

"REV-O-NOC" CURVED TINNERS' SNIPS.

Drop Forged, Steel-Laid.

Nos.	218	219
Full length.	12¾	13½ in.
Cut.	3½	3 in.
Weight	1½	1 lbs.
Per pair..	$3.00	2.50

"REV-O-NOC" ROUNDED BACK TINNERS' SNIPS.

Drop Forged, Steel-Laid.

Nos.	260	270	280
Full length	15½	14¼	13 in.
Cut.	4½	4	3½ in.
Weight	3¼	2½	1¼ lbs.
Per pair	$3 50	3 00	2 50

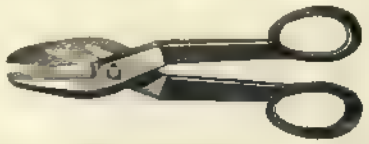
Nos.	290	300
Full length	12¼	11¼ in.
Cut	3	2½ in.
Weight	1	¾ lb.
Per pair	$2 00	1 00

These snips will cut curves, scrolls and irregular shapes, besides being adapted to the same class of work as the ordinary straight snips. The jaws are not bent, like those of circular snips. They are shaped in a peculiar manner to allow the material to pass freely when cutting curves, or changing the direction of the cut

STRAIGHT HAND SHEARS OR SNIPS.

P. S. & W. Co's, Wrought Handle.

Nos.	6½	7	8	9	10	11
Cut (catalogue)	4¼	4	3½	3	2½	2 in.
Cut (actual)	4¾	3½	3¼	3	2½	1½ in.
Weight	3¼	2½	2	1½	1	¾ lbs.
Per pair.	$3 00	2 50	2 00	1 50	1 40	1 25



No. 30—Chilled iron, cut 2¾ in., w't 1⅛ lbs. ..... per pair $0 60
No. 3—Forged tool steel, cut 3 in length 12 in., w't 1¼ lbs. ..... per pair 1.50

CIRCULAR HAND SHEARS OR SNIPS.

P. S. & W. Co's, Wrought Handle.

No. 70—Cut 3½ in., w't 2½ lbs., per pair $3 50
No. 80—Cut 3¼ in., w't 2 lbs., " 3 00
No. 90—Cut 2¾ in., w't 1⅝ lbs., " 2.50

All illustrations show left hand shears which have the lower blade on the left side.

Left hand shears are generally used, and are always sent unless otherwise stated. If wanted for a left handed man the order should so state.

Shears for left handed men are subject to an advance in price.

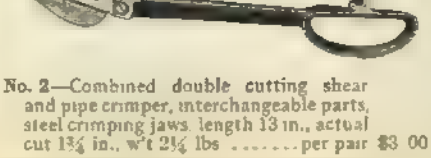
DENTAL SNIPS.

Japanned Handles, Nickel Plated Blades.

No. 21—1½ in. cut, w't per doz. ½ lbs per dozen $20 00
No. 22—2 in cut, w't per doz. ⅝ lbs., per dozen 22 00

For cutting wire cloth, etc., especially adapted for milliners

COMBINED SHEARS AND PIPE CRIMPERS.



No. 2—Combined double cutting shear and pipe crimper, interchangeable parts, steel crimping jaws, length 13 in., actual cut 1¾ in., w't 2¼ lbs ..... per pair $3 00

METAL CUTTING SHEARS.

No. 4—"Universal," superior quality highly tempered steel, polished blades, black enameled handles, length 12 in., w't 1½ lbs. ..... per pair $3 50

No. 5—"Universal," length 7½ in., otherwise same as No. 4, w't 7 oz., per pair. 5 00

These shears will enable any one to cut with the greatest ease, all kinds of sheet metal, along curved lines as well as straight, leaving a clean cut edge.

HAWK'S BILL SHEARS.

No. 15—Pointed snips (actual cut 2¼ in.), length over all 9¾ in., w't per pair 1 lb per pair $3 00

BENCH SHEARS.

Nos.	00	0	1	2
Cut (catalogue)	12	10½	9	8⅝ in.
Cut (actual)	11	9½	8¼	8 in.
Weight	36	28	23	18 lbs.
Per pair	$13 50	12 00	9 00	7 00

Nos.	3	4	5	6
Cut (catalogue)	8½	8	7	6 in.
Cut (actual)	7¾	7½	6	5 in.
Weight	13	12	9	8 lbs.
Per pair.	$6 00	5 00	4 00	3 50

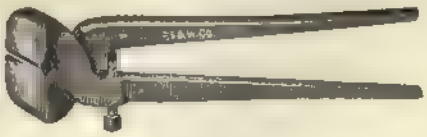
CRIMPING TONGS.

Packham's, for pipe and metal, w't 2 lbs., per pair $1.25

ALSO SEE TINNERS' SNIPS ON PAGES 1683 AND 1684

TINNERS' TOOLS.

CUTTING NIPPERS.



Cast Steel Jaws.

Nos.	1	2	3	4	5
Length	12	10¾	9¾	8	7 in.
Weight	2¼	1¾	1½	1	¾ lbs.
Per pair	$2.25	2.00	1.50	1.40	1.00

ONE IN A PACKAGE

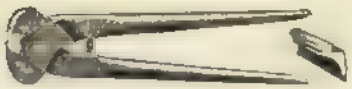
PATENT CUTTING NIPPERS.

Acme, Steel Jaws.

Nos.	1	2	3	4
Length	12	11	10	8 in.
Weight	2	1¾	1½	¾ lbs.
Per pair	$2 25	2 00	1.75	1 [illegible]

Extra jaws ..... per pair $0.50

ONE IN A PACKAGE.

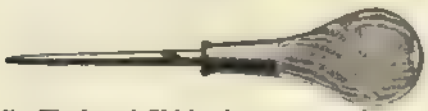


Carew, Forged Hardened Tool Steel Jaws.

Nos.	1	2	3	4	5
Length	14	12	10	8	6 in.
Weight	3¾	2¾	2	1½	¾ lbs.
Per pair	$3.00	2 50	2 25	2.00	1 75
Extra jaws, per pair	.70	.65	.60	.55	.50

ONE IN A PACKAGE.

HURWOOD TINNERS' SCRATCH AWLS.



No. 77—Length 7½ in., heavy cast steel tempered and polished point, shank running through handle, riveted and headed, beech handle, polished steel ferrule, w't per doz. 3½ lbs..per dozen $4 00

HALF DOZEN IN A BOX.

WIRE CHISELS.

Cast Steel.

Width	1-4	3-8	1-2	5-8	3-4 in.
Each	$0 08	.09	.10	.11	.12
Width	7-8	1	1 1-8	1 1-4	1 1-2 in.
Each	$0 13	.14	.15	.17	.20

¼ TO ¾ IN. ONE DOZEN; BALANCE, HALF DOZEN IN A BOX

LANTERN CHISELS.

Cast Steel.. . each $0 12

ONE DOZEN IN A BOX.

SOLID PUNCHES.

Cast Steel.

Nos.	0	1	2	3	4
Size	1/16	1/8	3/16	1/4	5/16 in.
Tinners' rivets	12	10	8	6	4 lbs.
Each	$0 12	.12	.12	.12	.12
Nos.	5	6	7	8	
Size	3/8	7/16	1/2	9/16 in.	
Tinners rivets	2	1	¾	½ lbs.	
Each	$0 12	.12	.12	.12	

In Sets, including one each Nos. 1, 4, 6 and prick punches, ¾ in. wire and lantern chisels, w't 1½ lbs. per set..per set $0.72

PRICK PUNCHES.

Cast Steel..... each $0 12

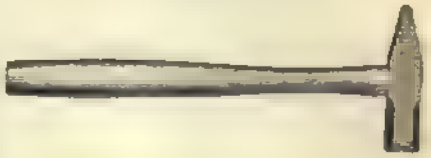
HOLLOW PUNCHES.

Diameter	1-4	3-8	1-2	5-8	3-4 in.
Weight	½	¾	⅞	1	1¼ lb.
Each	$0 25	38	50	.62	75
Diameter	7-8	1	1 1-8	1 1-4	1 1-2 in.
Weight	1¼	1⅝	1	1⅛	1½ lbs
Each	$0 88	1 00	1 13	1 25	1 50
Diameter	1 3-4	2	2 1-4	2 1-2	3 in.
Weight	2¼	2¼	2½	3	3¾ lbs
Each	$1 75	2 50	2 81	3 13	3 75

HAND GROOVERS.

Nos.	00	0	1	2
Groove	1/32	1/16	1/8	3/16 in.
Weight	1¾	1⅝	1¼	1¼ lbs
Each	$0.75	.75	.63	.50
Nos	3	4	5	6
Groove	1/8	1/4	3/8	1/2 in.
Weight	1	1	⅞	½ lb.
Each	$0 50	.50	.37	.37

RIVETING HAMMERS.



No. 1—Sheet iron, bright, cast steel, 1⅛ in handled, w't 1¼ lbs.....each $0 82

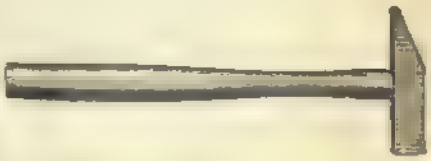
No. 2—Tin, etc., bright, cast steel, 1 in., handled, w't 1 lb.....each .70

No. 3—Tin, etc., bright, cast steel, ⅞ in., handled, w't ¾ lb.....each .57

No. 4—Tin, etc., bright, cast steel, ¾ in., handled, w't ½ lb.....each .45

HALF DOZEN IN A BOX.

SETTING HAMMERS.



No. 1—Cast steel, 1⅛ in., handled, w't 1¼ lbs. .....each $0 82

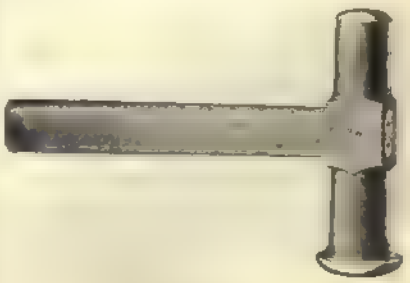
No. 2—Cast steel, 1 in., handled w't 1 lb , each ..... .70

No. 3—Cast steel, ⅞ in., handled, w't ¾ lb.....each .57

No. 4—Cast steel, ¾ in., handled, w't ½ lb.....each .45

HALF DOZEN IN A BOX

RAISING HAMMERS.



Cast Steel, Handled.

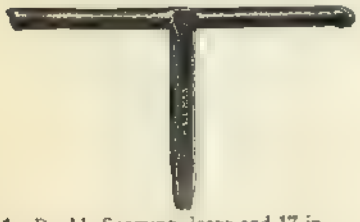
Nos.	1	2	3	4
Weight	6	3¾	2¼	1¼ lbs
Each	$2.35	1.85	1.35	.85

TINNERS' TOOLS.

WROUGHT IRON STAKES, WITH STEEL FACES.

No. 1—Beakhorn stake, w't 45 lbs..each $15.00

No. 88—Common Blowhorn, large end 9 in., small end 17½ in., w't 19 lbs., each $5.00



No. 1—Double Seaming, large end 17 in., small end 12 in., w't 3¼ lbs.....each $9 00
No. 2—Double Seaming, each end 11 in., w't 29 lbs.....each 8.00

No. 8. No. 84.

No. 8—Common Creasing, 14½ in. long, w't 12½ lbs..... each $4 00
No. 84—Creasing, with horn, round end 9½ in., flat end 6½ in., w't 12½ lbs., each 4 50

No. 6—Needle Case, flat end 8 in., small end 10½ in., w't 4 lbs. .. .. each $2 25

No. 65—Candle Mould, small end 18 in., horn 8½ in., w't 6½ lbs.....each $2.75

WROUGHT IRON STAKES, WITH STEEL FACES.

No. 66—Common Square face 2½×4½ in., w't 11 lbs .. each $3 00

Hatchet.

Nos.	1	2	3	4	5	6
Length of blade	10	14½	13	11	9	7 in
Weight...	14	12	9	6	4	3 lbs
Each...	$5 00	4 25	3 50	2 75	2 25	1 75

CAST IRON STAKES.

No. 5 Round.

No. 4. No. 6. No. 7

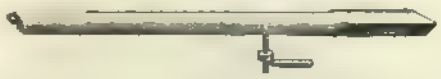
No. 48—Double Seaming, with 4 heads, round, square, oblong and oval, w't 85 lbs.....each $9 00
Extra Heads, for double seaming, No. 5 round, No. 4 oval, No. 6 square and No. 7 oblong.....each 1.50
In ordering any of the above extra heads, use numbers.

No. 54—Round head, w't 11 lbs....each $1 25

No. 0—Mandrel, 3 ft. 4 in. long to the standard, w't 87 lbs.....each $6.00
No. 1—Mandrel, 2 ft. 10 in. long to the standard, w't 44 lbs.....each 5.00

CAST IRON STAKES.

No. 1—Conductor, turned, large end 15 in., small end 11½ in. long, w't 35 lbs., each. $4 00



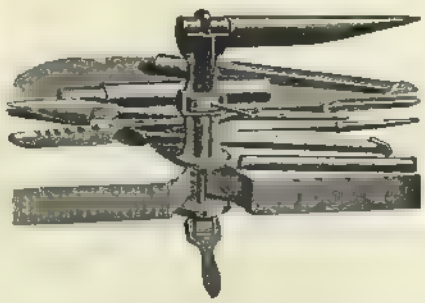
No. 67—Hollow mandrel, 3 ft. 4 in. entire length, w't 45 lbs..... each $5 50

BENCH PLATES.

Cast Iron, Polished.

No. 1—37×8 in., w't 50 lbs. . each $5 00
No. 2—30×8 in., w't 37 lbs. .. 3 00

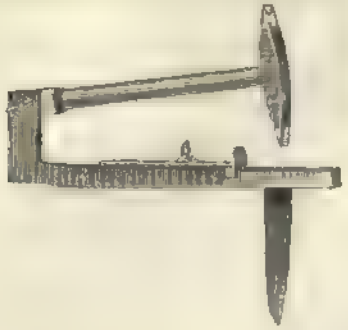
UNIVERSAL STAKE HOLDERS.



No. 90—Full set, comprising 7 different stakes, with stake holder w't 139 lbs., each.....$37 25
No. 91—Stake holder, w't 21 lbs...each 4 50
No. 92—Beakhorn, for stake holder, w't 31 lbs.....each 11.00
No. 93—Blowhorn, for stake holder, w't 11 lbs. .....each 3.75
No. 94—Creasing and horn, for stake holder, w't 9 lbs.....each 3.50
No. 95—Double seaming, for stake holder, w't 23 lbs.....each 6.50
No. 96—Conductor, for stake holder, w't 26 lbs .....each 4.00
No. 97—Candle mould, for stake holder, w't 4¼ lbs.....each 2 25
No. 98—Needle case, for stake holder, w't 4 lbs.....each 1.75

TINNERS' TOOLS.

SQUARE PAN SWEDGES.



No. 7—W't 11 lbs..... each $5 00

SQUARE PAN TURNERS.

No. 1—Steel, 20 in., w't 6 lbs. .....each $2 50

RIVET SETS AND HEADERS.

Forged Steel, Japanned, Polished and Blued.

Nos.	00	0	1	2
For rivets	14	10 & 12	8	6
Each	$0.75	.75	.63	.63
Nos.	**3**	**4**	**5**	
For rivets	4 & 5 lbs.	2½ & 3	1¾ & 2	
Each	$0 50	.50	.37	
Nos.	**6**	**7**	**8**	
For rivets	1½	1¼ lbs.	10 & 12 oz	
Each	$0 37	.32	.32	

HALF DOZEN IN A BOX.

WOOD ROOFING FOLDERS.

30 in., improved, *with gauge*, w't 17 lbs each..... $5 00
30 in., common, *without gauge*, w't 15 lbs each.....

ROOFING TONGS.

This cut illustrates a pair
Common Roofing Tongs, steels, sizes ½, ¾, 1, 1¼ and 1½ in., w't 15 to 20 lbs., per pair..... $3.00
Specify size in ordering.

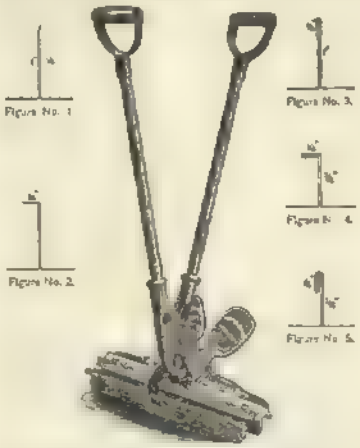
GUTTER TONGS.

This cut illustrates a pair
Gutter Tongs, w't 10 lbs.....per pair $5 00

ROOFING DOUBLE SEAMERS.

This cut illustrates a pair.
No. 4—Roofing Double Seamers, sizes 1×1¼ in. and 1¼×1¼ in. (two pairs to match make one set), w't per set 9 lbs.....per set $1 [illegible]

BURRITT'S DOUBLE SEAMERS.



This cut illustrates a pair. Two pairs make a set.
For Standing Lock Tin Roofing.
No. 6—1 and 1¼ in., w't per set 38 lbs per set..... $30 00
No. 5—1¼ and 1½ in., w't per set 40 lbs per set..... 30 00

First, the edges of the tin are turned up, one side being 1 in. and the opposite side 1¼ in. in height as shown in Fig. 1. This operation is accomplished by means of two pairs of roofing tongs, sizes corresponding to the above.

Place the 1¼ in. roofing double seamer which has the widest jaws over the tin, which has been turned up 1¼ in., and throw the handles together. This turns over ¼ in. of tin at right angles, as shown in Fig. 2. Then use the other side of the same instrument, which is operated by the foot. This leaves the tin as shown in Fig. 3. Now use the 1 in. roofing double seamer, make the bend as shown in Fig. 4 by using the handles, and complete the operation by using the other side of the same instrument, which is operated by the foot. This leaves a standing locked seam ¾ in. in height, as shown in Fig. 5.

If a standing locked seam 1 in. high is wanted, it is necessary to use the large set (No. 5), which consists of a pair of 1½ and a pair of 1¼ in. roofing double seamers.

A full set is needed to make the double seam.

SOLDERING COPPERS.

Sharp Point, w't per pair 1, 1½, 2, 2½, 3, 4, 5, 6, 8 and 10 lbs.....per pound $0 35

Wedge Point, w't per pair 4, 5, 6, 8 and 10 lbs..... per pound $0.35

Square Point, with shield and handle, w't per pair 11 and 12 lbs.....per pound $0 35

SOLDERING COPPER HANDLES.

No. 1—Soft wood wire bound, assorted, w't per doz., 2 lbs. .....per dozen $0 30

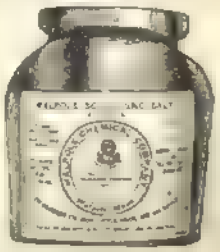
SOLDERING SETS.

No. 7.

No. 6—One light copper soldering iron, one small round stick of solder, one box of rosin and one piece of tin, complete in paste board box, w't 3 lbs., per dozen sets..... $3 50
No. 7—One heavy copper soldering iron, one scraper, one large triangular stick of solder, one box rosin, one piece of tin, complete in paste board box, w't 7 lbs., per dozen sets..... 5 00

ONE SET IN A PASTEBOARD BOX.

SOLDERING SALTS.



2 oz. Bottles	per dozen	$2 00
8 oz. Bottles	"	3.50
1 lb. Bottles	"	7.00
5 lb. Jars	each	2 00
10 lb. Jars	"	3.50
25 lb. Jars	"	10.00

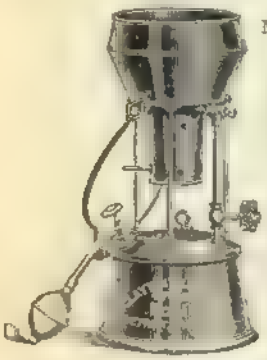
A complete substitute for the usual mixture used for soldering purposes. It makes a better joint, is safer, cleaner, more convenient, and cheaper than the old-fashioned method. Uniform in strength, and unaffected by climatic changes.

TINNERS' TOOLS.

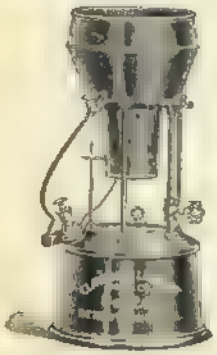
FIRE POTS.

No. 78 - BUTTLES PATENT charcoal sheet iron japanned, w't 15 lbs.....each $4 00

This Fire Pot is so constructed that the ashes fall into a pan beneath the coal and the fire is kept clear and the draft is good. It is light and may easily be carried from place to place at the convenience of the workman.



No. 15—C. & L. COIL gasoline galvanized iron tank with galvanized cast iron bottom ring, coil of extra heavy pipe, burner of steel, small castings of malleable iron or brass, w't 13 lbs each $4 75



No. 20—C. & L. COIL, gasoline, galvanized iron tank with galvanized cast iron bottom ring, coil of extra heavy pipe, steel burner, small castings of malleable iron or brass, fitted with automatic brass air pump, w't 13 lbs..... each $5 00

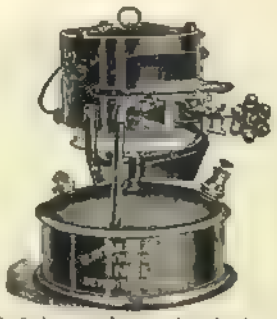
Nos. 10 and 20 are well and favorably known. The generator is powerful, producing a large volume of pure blue flame that is intensely hot, consuming less gasoline than other makes.

The valves are fitted with needle points which give the user better control of the fire and are always tight.

No. 20 is fitted with an automatic brass air pump which is more durable than bulbs and enables the user to use more air, thereby producing a blue blast flame that is intensely hot.

ONE IN A CRATE.

FIRE POTS.

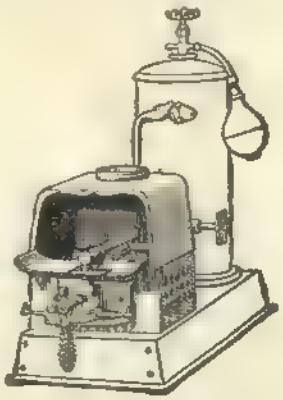


No. 1—C. & L., gasoline, galvanized iron tank, diam. 9 in., *sheet steel hood*, diam 6¾ in., height 12 in., fixed pump, japanned wood handle, w't 14 lbs..each $7 00

No. 5—C. & L. "SPECIAL," gasoline, galvanized iron tank, diam 8 in., *sheet steel hood*, diam 6 in., height 11 in., fixed pump, japanned wood handle, w't 12 lbs.....each 5 50

No. 5 is same as No. 1, except smaller. It has proven very popular with metal workers, plumbers and electricians.

With these Fire Pots a kettle of solder or lead can be kept hot enough to wipe joints, and at the same time, without removing kettle from fire, there is sufficient room and heat to keep soldering irons ready for use. Removing the top section exposes an open fire, which may be used as a torch or brazing fire. Can also be used to thaw coil pipe apart, thawing frozen pipes, wiping overhead joints, or removing paint or tar from roofs. Will work satisfactorily in the heaviest wind, where it is impossible to get sufficient heat out of any other make of fire pot.



No. 3.

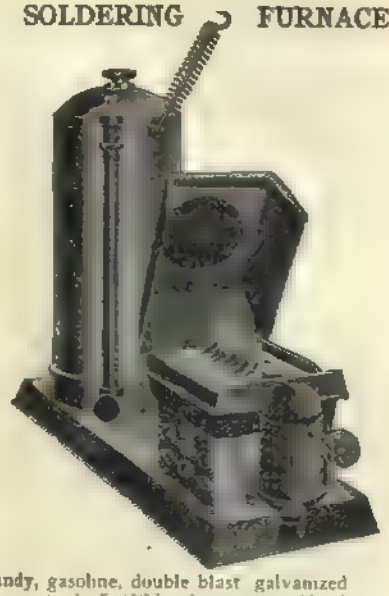
No. 3—GEM, gasoline, 21×7 in., sheet steel base, 10½×4¼ in., sheet steel reservoir, aluminum bronze, cast iron furnace, removable top, feed regulator, all cast brass fittings, japanned wood handle, sliding drip cup, rubber pump bulb, w't 14 lbs. .....each $8 00

No. 10—TORRID, gasoline 11×6×4 in., sheet steel reservoir, capacity 1 gal., aluminum bronzed, cast iron horseshoe burner, iron top, height 11½ in., w't 25 lbs...each $6 50

ONE IN A CRATE.

No. 5—RUBBER BULBS, for gasoline fire pots, w't ¼ lb.....each 1.00

SOLDERING FURNACES.



Lundy, gasoline, double blast galvanized iron tank 5×12 in., brass pump 10×1 in., brass generator, cast iron frame, sheet steel base 19×7½ in., height over all 17 in., w't crated 30 lbs., each $17 00

The Lundy furnace has two blasts and is so constructed that the heat from both blasts is forced from the outside to the center so that while one iron is being used, the other one receives the force from both blasts, and the irons can be heated as fast as any other can possibly cool them.

It is well made and with ordinary care will last a lifetime.

STANDARD WIRE GAUGES.

No. 3—Cast steel oblong gauges Nos. 1 to 36, accurately guaranteed, w't per doz. ½ lb. per dozen $18 00

No. 4—Cast steel, oblong, gauges Nos. 0 to 36, accurately guaranteed, w't per doz. ¾ lbs. per dozen $2.. 00

No. 2—Cast steel, round, small, gauges Nos. 6 to 36, w't per doz. 1 lb., per dozen..... $15.00

No. 1—Cast steel, round, large, gauges Nos. 0 to 36, w't per doz. 2½ lbs., per dozen..... 24 00

HALF DOZEN IN A BOX.

PHOTOGRAPHIC SUPPLIES.

DEVELOPING POWDERS.

These powders will develop all makes of plates, films, lantern slides, bromide papers, etc., in the most perfect manner.

They are complete in themselves—no other chemicals are required. They will keep any length of time in all climates. The youngest amateur will succeed with them. They can be carried in the pockets or sent through the mails.

No fear of breakage. Perfect for travelers the powders being simply dissolved in four ounces of water in one minute. Six pairs of powders in each box. Sufficient to make 24 ounces of solution. Full directions printed on each envelope containing one set of powders.

Pyro

No. 1—Boxes of six pairs of powders, each $0 30

This is a most excellent developer for negatives. The finest results can be obtained by its use. Its only disadvantage is its liability to stain, but with ordinary care this can be avoided.

Eiko-Hydro.

No. 2—Boxes of six pairs of powders, each $0 30

For portraits, outdoor views, etc., it is one of the best known reliable developers. It gives detail and density in harmonious proportions as the development proceeds and will not stain either negatives or fingers.

It is suitable for all makes of plates and films.

Hydrochinon.

No. 4—Boxes of six pairs of powders each $0 30

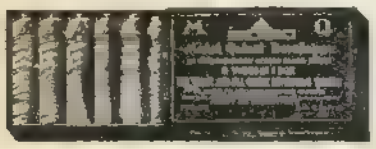
This developer is especially suited for subjects requiring extreme contrasts with purity in the shadows, such as lantern slides, book illustrations and bromide papers and instantaneous exposures. Especially suitable for films and plates.

Hydro-Metol.

No. 5—Boxes of six pairs of powders each $0.30

For general use the Hydro-Metol developer will be found the most satisfactory as having the *widest range of adaptability.* This developer gives a rich black deposit, clear whites with complete absence of stain. It is well suited for snapshots on plates and films, and developing papers. For an all around clean working developer this combination is hard to beat.

No. 6—**Auto Tank**, for use in connection with tank or standard development boxes of six pairs of powders each $0 40



M. Q. (in Glass Tubes).

No. 8—Boxes of six tubes each $0 60

Pictures on developing paper affected by this preparation show all the details that were in the negative, and have a tone quality that is equaled only in platinum and carbon prints. The whites are pure; the gradations the softest imaginable; shadows and high-lights rich in detail, and the tone just right.

Negatives on plates or films developed with this preparation will be found to be brilliantly clear, free from stain or fog, and with perfect gradations and details. Always fresh and ready by simply dissolving the contents of the tubes in water.

M. Q. OUTFITS.

Outfit Complete—For developing and fixing Cyko Velox and Argo paper and films ..... each $0 25

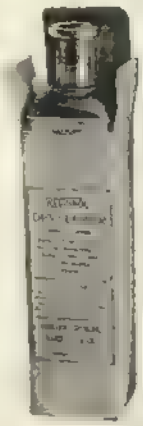
This is a trial outfit, containing one Ideal M. Q. tube and trial size package of Ingento and hypo sufficient to develop and fix about two dozen prints. It can also be used for plates and films.

ANTI-FRICTION DEVELOPERS.

No. 12—Boxes of six tubes ...each $0 35

For matte and glossy surface papers, put up in paraffine lined tubes, ready for use, six tubes sufficient for 24 oz. solution.

REVONOC HYDRO-METOL DEVELOPER.



For Plates, Films and Developing Paper.

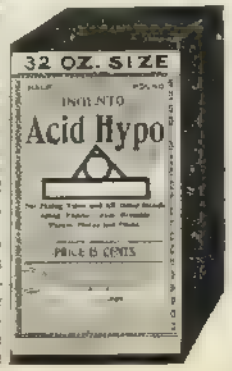
This is a powerful, quick acting developer in solution, most [illegible] when diluted with water. Every kind of plate, film or slight paper can be successfully developed with it.

The results obtained with it are so much [illegible] as to give the greatest possible detail or under or over exposures. This developer, long that is in the best general results it yields, makes it the most perfect developer for general use.

No. 2 REVONOC 36 oz size, in 8 oz. bottles, each $0 30

H. S. B. & CO.'S ACID HYPO.

This compound, for [illegible] prints, [illegible] plates and films to perfection, but it also clears the whites, makes the shadows transparent and hardens the films. Plates and papers that have been fixed in this bath need no other hardening.



No. 1—Boxes (will make 16 oz.) each $0 10
No. 2—½ lb. pkgs ..... " 20
No. 3—1 lb. pkgs..... " 35

H. S. B. & CO.'S (HYPO).

No. 5—1 lb. boxes..... each $0 08

This is a fine selected hyposulphite of soda, either pea crystal or granular, for fixing plates or paper. The crystals are pure, transparent, small and easily dissolved.

Put up in strong, paper covered and sealed square carton boxes.

SEPALINE.

For Producing Brilliant Sepia Tones on Velox, Argo, Cyko, Bromide and Other Developing Paper, Transparencies and Lantern Slides.

Black and white prints on developing paper can be redeveloped at any time to a [illegible] tone. It takes but two minutes to produce a finished sepia print, while by the old hypo-alum process it takes from six to twenty four hours. Prints toned with sepaline are absolutely permanent and the results when finished are equal if not superior to sepia-tone platinotypes.

No. 8—Package sufficient for 300 cabinet prints..... .....each $0.60

NEG-DRY.

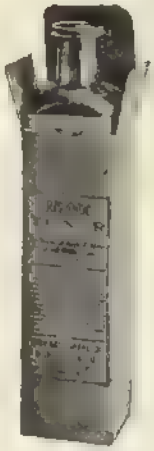
With Neg-Dry negatives can be dried in less than five minutes, after they have been washed by putting them in this preparation and then drying them by artificial heat. It makes the gelatine insoluble and eliminates all traces of hypo that may not have been removed in the washing.

It makes the glass stand and therefore no varnish is required. Neg-Dry is the best hardener made for printing papers. It overcomes all trouble experienced in handling papers during hot weather, and prevents prints from sticking to the ferrotype plate. Sold only in 4-ounce bottles.

Neg-Dry..... .....per bottle $0.40

PHOTOGRAPHIC SUPPLIES.

REVONOC TONING AND FIXING SOLUTION.



For Gelatine Printing-Out Papers, Including Soho, Royal White Star, Disco, etc.

This toning solution is rich in gold, and its ingredients are so proportioned that when the toning is completed the prints will be thoroughly fixed.

Prints may be immersed in the bath just as they come from the printing frame as they require no preliminary washing, and the toning and fixing proceed together very evenly and rapidly until the operation is completed.

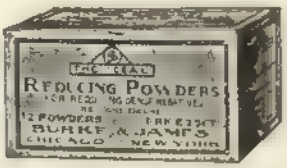
This bath works perfectly with all makes of printing-out papers, and it will give prints from light sepia to a deep brown or black, and the results are permanent.

No. 2 REVONOC—28 oz. size in 8 oz. bottles each..... $0.20

TONING AND FIXING TUBES.

No. 2—Tube for 12 oz. of solution . each $0.15

REDUCING POWDERS.



No. 10—Box of 12 packages.....each $0.30

Negatives that are so dense as to be useless or that take hours to print through, can be quickly reduced to the correct density for quick printing by the use of these preparations.

CYANINE BLUE PRINT POWDERS.

Cyanine produces Prussian blue prints of royal tone readily and rapidly on paper, cards and fabrics.

Cyanine consists of one powder to be dissolved in plain water and is then instantly ready for use. It will keep indefinitely without deteriorating. It can be used successfully the first time by the youngest amateur. Prints made with cyanine may be toned at any time to sepia, brown, black or green. Full directions with each bottle. Sold only in sealed glass bottles.

No. 1—1 oz. bottles . . . . . each $0.25
No. 4—4 oz. bottles . . . . . " .70

SOLINE.

A single application of this solution makes all kinds of cloth, paper and cards very sensitive to sunlight. It will be found invaluable for making prints on sofa pillows, banners, handkerchiefs, visiting cards, note paper, etc.

Soline is easily and quickly applied, and materials sensitized with it are printed like any ordinary photographic paper.

No. 12—2 oz. bottles . . . . . each $0.64
No. 18—8 oz. bottles . . . . . " 2.10
No. 20—16 oz. bottles . . . . . " 3.60

POLISHING SOLUTION.

This solution is to be rubbed on the ferrotype plate. It absolutely prevents prints from sticking to the plate so that when the prints dry they peel off without tear or blemish and have a most magnificent glace polish.

No. 13. .....each $0.15

RESTRAINING TABLETS.

Potassium bromide C. P. tablets are made of chemically pure potassium bromide and each tablet contains exactly ten grains. The use of potassium bromide has become so necessary that every amateur or professional photographer must use it in order to obtain satisfactory results in developing plates or papers.

No. 17 each $0.15

INTENSINE.

No. 19 Tubes . . each $0.30

This is a powerful, quick-acting intensifier, in crystalline form, that dissolves instantly in water to make a single solution. When applied to thin, flat printing negatives it makes them strong and brilliant printers.

A tube of it making eight ounces of intensifying solution (enough for four or five dozen 4×5 in. plates), can be carried in the vest pocket.

DIAMOND SPOTTING COLORS.

No. 1—Per set of three colors.....each $0.20

This is the "catchiest" set of sporting colors that has ever been provided for amateur use. It is made from the choicest spotting and retouching pigments that are obtainable. It is a very attractive set and is as useful as it is attractive. This should be seen and used to be fully appreciated.

LUXO FLASH-LIGHT POWDERS.

Luxo is a magnesium flash powder, which is very quickly ignited, and is of great actinic power, producing very little smoke and being almost noiseless. It is without doubt the most popular flashlight compound on the American market, being used by all the best flashlight photographers.

It is put up in one and four-ounce wooden boxes. Owing to the danger incident to handling flash-light powder, Luxo is not put up in larger packages than four ounces. Flash light powder cannot be sent by mail.

½-ounce boxes . . . . each $0.50
4-ounce boxes . . . . " 1.70

LUXO FLASH CARTRIDGES.

No. 1—Small size . . per package $0.35
No. 2—Large size . . " .55

Luxo cartridges are made of Luxo flash powder put up in cartridge form, which is both safe and convenient. They are supplied with fuse ready to use. They yield a magnificent intense actinic light that has a powerful action on a sensitive dry plate, equal to a burst of sunlight. Put up in two sizes, each containing six cartridges.

PHOTOGRAPHIC OUTFITS, WASH BOXES, ETC.

DEVELOPING AND PRINTING OUTFITS.

No. 1—For negatives, 4×5 in. or smaller, complete in cardboard box ... ... each $1.00

Contents.

3 japanned trays.	Toning powder to make eight ozs., solution.
1 printing frame.	1 lb. hypo.
1 ruby candle lamp.	1 4-oz. measuring glass.
Developing powders to make eight ozs., solution.	1 doz sensitized paper.
	1 manual of instructions

No. 2—For negatives, 4×5 in. or smaller, complete in cardboard box.....each $2.40

Contents.

3 electrose trays.	1 pkg toning powders.
1 ruby candle lamp.	1 lb. hypo.
1 printing frame.	1 4-oz. measuring glass.
1 box developing powders.	1 doz. sensitized paper.
	1 manual of instructions

No. 3—For negatives, 4×5 in. or smaller, complete in cardboard box.....each $3.00

Contents.

3 electrose trays	1 negative drying rack.
1 4-oz. graduate.	1 print roller.
1 ruby candle lamp.	1 4-oz. jar paste
1 printing frame.	1 paste brush.
1 box developing powders.	1 doz. card mounts.
1 pkg toning powders.	1 lb. of hypo.
	1 doz. sensitized papers

1 manual of instructions.

These outfits contain all the necessary apparatus, chemicals and material for the developing and fixing of plates, also for the printing, toning and mounting of prints. Our No. 3 outfit contains everything required for the production of the finished mounted photograph, except the camera, and is especially recommended. We guarantee everything contained in these outfits to be of the best quality.

FOCUSING CLOTHS.

No. 5—Focusing cloth is made of fine black serge cloth, coated on one side with rubber, which makes it perfectly light and waterproof. Each cloth is one yard square... ... ...each $0.60

PACKED IN CARDBOARD BOX

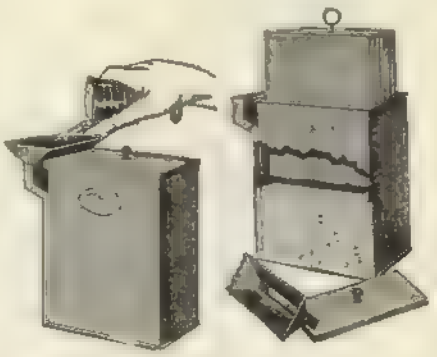
INGENTO DEVELOPING TANKS.

Style A

For Developing, Fixing and Washing.

3¼ × 4½ in., or 1 S.....each	$3.40
3¼ × 5½ in.	3.40
4 × 5 in.	3.40
5 × 7 in.	5.00
8 × 10 in.	8.00

Made of strong brass polished and nickel plated, and fitted with removable rack with wide grooves to hold the plates.



Style B.

For Developing and Washing.

3¼ × 4½ in.....each	$1.75
4 × 5 in. ... "	1.75
5 × 7 in. ..	2.50
8 × 10 in.	4.50

These tanks are of brass and fitted with grooves which extend from the top downward and with our patent lifting bottom which allows the negative to be removed without dipping the fingers in the solution.

This tank cannot be used for fixing, as zinc will gradually disintegrate under the action of a Hypo solution.

Ingento Tanks "A" and "B" are made with six wide grooves to take six plates readily. Twelve plates can be developed at once by placing two in each groove with the backs together.

Outside of tanks A and B, and extending to the bottom, is a screened, light-tight tube by means of which the tank is filled through a funnel with the developer in daylight, the solution entering at the bottom of the compartment.

INGENTO PRINT WASHERS.

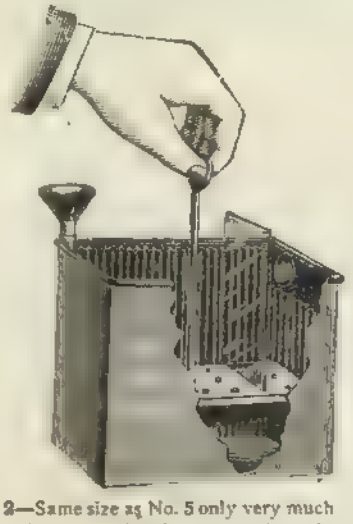
No. 1—For 4 × 5 in. prints 11 in. diameter each $2.00

No. 2—For 5 × 7 in. prints 12 in. diameter each 2.80

This print washer embodies some simple principles that have never been [illegible] for such a purpose, and the result is a washing apparatus in which the prints are thoroughly and separately washed without requiring the slightest attention during the operation.

The water is admitted through the side and at first takes a circular motion, following the side of the cylinder, but the circular motion is checked and changed into a centripetal one before the end of the first revolution by a simple device contained within the cylinder, so that the prints are kept constantly in its center and away from the outlet.

ADJUSTABLE WASH BOXES.



No. 2—Same size as No. 5 only very much heavier material and stronger throughout..... each $2.00

These washers are perfect in their construction. The water enters through the inlet tube and is carried to the bottom and is circulated over the whole area of the box. It is carried off through the outlet tube. The water can be carried to the box by attaching a rubber hose from the faucet to the inlet tube, or the box can be placed under the faucet and the water allowed to run into the funnel.

Our patent lifting bottom can be taken up by means of the rod in the center, so that the films can be held at the edge without scratching them.

The washer is constructed of heavy zinc throughout. If desired, the lifting bottom can be taken out entirely.

PHOTOGRAPHIC SUPPLIES.

ELECTROSE TRAYS.

4 × 5½ in	each	$0 14
5½ × 8½ in	"	30
7 × 9 in	"	48
8½×10½ in	"	.60

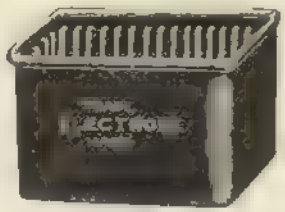
Electrose Trays are entirely seamless and consist of a solid mass of homogeneous material. Chemicals will neither affect nor discolor them. They are provided with an outpour lip. All corners in the interior of the tray are rounded.

IDEAL HARD RUBBER TRAYS.

4¼ × 5¼ in	each	$0.75
5¼ × 7¼ in.	"	.92

For most purposes these hard rubber trays are the best as they are made of pure rubber (vulcanized). They cannot be attacked by any acid or chemical. They will last a lifetime, although constantly used. They are light and strong and if accidentally broken can be repaired by revulcanizing. Where trays are in constant use, these will be found the most economical.

ELECTROSE FIXING BOXES.

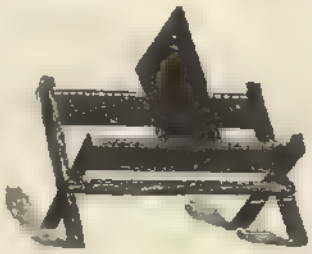


No. 1—For 3¼×4¼ in. and 4×5 in. plates ..... each $1.50

No. 3—For 4×5 in. and 5×7 in. plates, each 2 25

This box is made of electrose, a chemical proof material which is vulcanized like hard rubber. It is made of one solid mass of the same material throughout, not coated or varnished. It will stand the action of hypo in solution in any form, plain or acid. It is the neatest and most practical box ever offered.

NEGATIVE DRYING RACKS.



No. 1—For 12 negatives each $0.20

These racks are strongly and neatly made and fold up very compactly. The No. 1 is by far the best medium priced rack on the market. It is substantially built, has corrugated bars to hold the negatives, and is made of nicely finished cherry

PHOTOGRAPHIC PASTE.

No 846G—SNOW FLAKE 2 oz., wide mouth office stand, with brush, w't per gro. 51 lbs. ..... per dozen $0 75

No. 844G—SNOW FLAKE, 4 oz., wide mouth office stand, with brush, w't per doz 6¼ lbs. ..... per dozen 1.60

Will not mould or sour, nor discolor anything on which it is used

NO. 846, THREE DOZEN; NO. 844, ONE DOZEN IN A BOX.

IDEAL FLASH GUNS.

No. 1—Complete with 4 in powder pan ..... each $1 90

This is the latest method in flash-light powder igniters. The powder is set off by a match, which is lighted by being pushed through a barbed tube. The match is forced through by means of a spring which is released by a touch of the finger on the trigger. The action is instantaneous, sure and noiseless. The pan is one of the special features of this apparatus. It is long and shallow and is so constructed that the light is thrown forward and utilized to its greatest degree. The Ideal Flash Gun is made of brass and handsomely copper plated and oxidized.

BARCLAY GRADUATES.

4 oz	per dozen	$3 50
8 oz	"	5.60
16 oz	"	8.00

The Barclay graduates are gotten up to supply the demand for an accurate graduate at a low price. The lines and figures are pressed instead of engraved, which renders them readily seen when in the dark room.

TUMBLER GRADUATES.

4 oz	per dozen	$1 20
8 oz	"	1 75
16 oz	"	3 00

These graduates have pressed lines and figures and are accurately graduated.

FUNNELS.

Handy per dozen $1 80

Is its name implies, a handy article to have about for use with small bottles, having a capacity of 2 ounces. It has a groove on the side of neck so that the air is expelled while pouring the liquid.

HYDROMETERS.

A hydrometer is an absolute necessity if you make up your own solutions, especially of soda mixtures, as different sodas vary greatly in strength. Our hydrometers have especially long tubes, which make them sensitive to the slightest variation in the specific gravity of the solution under test. Directions for use with each hydrometer.

No. 8—Including glass jar. each $0.40

PHOTOGRAPHIC SUPPLIES.

PRINT FRAMES.

IMPERIAL.

3½ ×4¼ in., piano hinge	each	$0 54
4 ×5 in., piano hinge	"	.57
5 ×7 in., piano hinge	"	.75

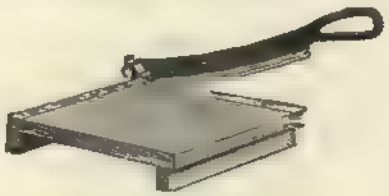
These frames are fitted with countersunk piano hinges, which extend along the full width of the pressure board and which add to its strength, appearance and durability. They have extra heavy springs and large finger cutouts, and are by far the best heavy printing frames on the market.

AMATEUR.

3½×3½ in., piano hinge	each	$0 30
3¼×4¼ in., piano hinge		.30
4 ×5 in., piano hinge		30
3¼×5½ in., piano hinge		36
3⅝×6 in., piano hinge		.36
5 ×7 in., piano hinge		.42

Is the highest grade of light frame made, has a steel countersunk piano hinge clear across, making it very durable and giving it a neat appearance.

TRIMMING BOARDS.



INGENTO.

6½ in	each	$2 00
8½ in	"	2.68

The blades of these boards are tempered steel, hollow ground, that keep a sharp edge and may be easily and quickly sharpened with an oil stone.

The board is of hard wood and polished.

IDEAL.

No. 1—For prints 4×5 in. .....each $0.65

These trimming boards are the latest addition to our line, and are especially gotten up to meet the demand for a low priced print trimmer. The boards are made of hard wood and shellac finished. The cutting knives are made of hardened steel and finely ground

RUBBER PRINT ROLLERS.

4 in., black enameled	each	$0 25
6 in., black enameled	"	40

The Ideal print rollers are made of the best material throughout. The handles are made of oak and polished, which makes a comfortable grasp for the hand. The rollers are made of pure rubber with hardwood center, and revolve free and true in their frames. The prints are specially manufactured for these rollers and are driven far into the hardwood center.

PUSH PINS.

No. 5G—Non-corrosive metal .per dozen $0.30

These will be found most practical for a great many purposes, especially for hanging up films and prints to dry.

RUBY OIL LAMPS.

No. 1G—Ideal ruby	each	$0.70
No. 2G—Ideal ruby extra large	"	1.30
Extra ruby or orange glass for No. 1	"	.16
Extra ruby or orange glass for No. 2	"	.18

These lamps are made on improved and scientific plans, giving a volume of light never before obtained with this style of lamp. They are regulated and filled from the outside and they are fitted with a new patent burner which insures perfect combustion without smell or smoke. The front is fitted with both orange and ruby glass, making the light perfectly non-actinic.

PLATE BRUSHES.

No. 2G—Camel's hair 2 in. flat, for dusting plates and films, tin bound....each $0.60

FERROTYPE PLATES.

10×14 in., heavy for squeegeeing prints, per dozen..... $3.60

PHOTOGRAPHIC SUPPLIES.

COLLINS' CARD MOUNTS.

Mantello Portrait.

No. 874—For photograph 3¼×4¼ in., per 100 ..... $0 92

No. 876—For photograph 4×5 in., per 100 1.20

No. 892—For photograph 5×7 in., " 2.33

No. 896—For photographs 2¼ x3¼ in per 100 ..... 1.30

Panel center, embossed border white enameled, ash gray and burnite only.

NOS. 874, 876 AND 896, TWO HUNDRED; NO. 892, ONE HUNDRED IN A BOX

Embossed.

No. 958XD—For photographs 3¼×4¼ in. .....per gross $2 13

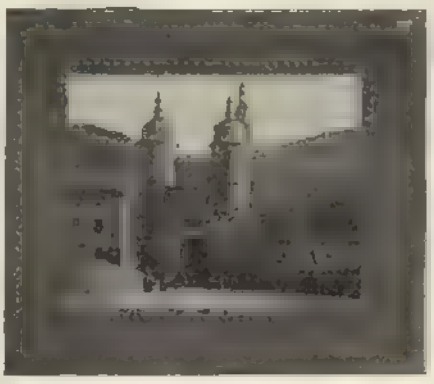
No. 958XE—For photographs 3¼×5½ in. .....per gross 2.40

No. 958XG—For photographs 4×5 in., per gross..... 2.47

No. 958XJ—For photographs 5×7 in., per gross 4.00

Very neat in design, beveled edges, embossed, lines around center in colors, which adds to the appearance of the mounted photograph, colors ash gray and carbon black, packed one gross in a box, wrapped in dozen packages for retail sales.

COLLINS' CARD MOUNTS.



Special View.

No. 841A—For photograph 3¼ x4¼ in., per 100 ..... $1 20

No. 841B—For photograph 3 x5½ in., per 100 ..... 1 47

No. 841C—For photograph 4×5 in., per 100 ..... 1 47

No. 841D—For photograph 5×7 in., per 100 ..... 2.33

Plain beveled edges, square corners, raised embossed lines around center, extra heavy stock in carbon black and ash gray only

ONE HUNDRED IN A BOX.

Magnifico.

No. XD—For photographs 3¼×4¼ in., per 100 ..... $1 20

No. XG—For photographs 4×5 in. per 100 ..... 1 53

No. XJ—For photographs 5×7 in. per 100 ..... 2 47

A very attractive extra thin white center gives a marked effect to the mounted print white center, ash gray border with deep

NOS. XD AND XG, TWO HUNDRED; NO. XJ, ONE HUNDRED IN A BOX.

PHOTO CARDS.

No. 842A—For photographs 3¼×4¼ and 4×5 in. .....per 100 $1.13

No. 842B—For photographs 5×7 in., per 100 ..... 2.34

Extra heavy stock, round corners, colors Scotch gray and carbon black

NO. 842A, TWO HUNDRED; NO. 842B, ONE HUNDRED IN A BOX.

SUB-MOUNTS.

	NO IN PKG.	PER DOZ. PKGS	PER BOX.
2¼x3¼ in.	35	$4 00	$10 80
3¼x4¼ in.	35	4.00	10 80
3¼x4½ in.	35	4.00	10 80
3¼x5½ in.	25	4.00	10.80
4 x5 in.	25	4 00	10 80
5 x7 in.	25	4 00	10 80
6½x8½ in.	15	4.00	10 80
8 x10 in.	15	4 00	10 80

Furnished in light gray, black, sepia, dark gray and white. The corners of the picture need simply be slipped into the slits of sub-mount, the adhesive back moistened, either with a brush or sponge, or by pressing upon a wet cloth, and rubbing into contact with your mount, no paste required. Always specify color desired.

36 PACKAGES IN A BOX.

ART CORNERS.

Per doz. pkgs..... $1 60
Per box 6 00

Furnished in light and dark gray, sepia and black, the corners of the picture need simply be slipped into the slits of Art Corners, moisten back and press corners firmly on mount or album leaf, no paste required. Keep album leaves perfectly flat and smooth, made round and square.

100 IN A PACKAGE, 48 PACKAGES IN A BOX.

PHOTOGRAPHIC SUPPLIES.

FLEXIBLE ALBUMS.

Black or Green English Cloth Binding.

Nos.	401	402	403	404
Size of leaf	5½ × 7	5½ × 7	7 × 10	7 × 12 in.
No. of leaves	25	50	25	50
Each	$0 49	70	70	1 05

Nos.	405	406	407
Size of leaf	10 × 7	10 × 7	10 × 12 in.
No. of leaves	25	50	25
Each	$0 70	1 05	1 40

Black Imitation Seal Grain Binding.

Nos.	421	422	423	424
Size of leaf	5½ × 7	5½ × 7	7 × 10	7 × 10 in.
No. of leaves	25	50	25	50
Each	$0 70	.91	1 05	1 40

Nos.	425	426	427
Size of leaf	10 × 7	10 × 7	10 × 12 in.
No. of leaves	25	50	25
Each	$1 05	1 40	2 10

Black Seal Grain Leather Binding.

Nos.	441	442	443	444
Size of leaf	5½ × 7	5½ × 7	7 × 10	7 × 10 in.
No. of leaves	25	50	25	50
Each	$1 19	1 40	1 75	2 10

Nos.	445	446	447
Size of leaf	10 × 7	10 × 7	10 × 12 in.
No. of leaves	25	50	25
Each	$1 75	2 10	2 80

Leaves are of gray stone gray and carbon black. In ordering specify number of book and color of leaf.

The covers are black, genuine seal grain leather and English book cloth. The leaves are made of thin strong melton finish.

NEGATIVE BOXES.

3¼ × 4¼ in.—For 50 negatives	each	$1 60
4 × 5 in.—For 50 negatives	"	1 60
5 × 7 in.—For 50 negatives	"	2 00

These boxes are strongly made of wood, covered on the outside with black bookbinders' cloth, and fitted with two nickel plated safety catches. There are partitions of pressed board, making a separate compartment for each negative.

TRANSPARENT NEGATIVE PRESERVERS.

	Per 100	Per 1000
3¼ × 3¼ in	$0 48	4 42
3¼ × 4¼ in	40	4 68
4 × 5 in	.51	4 88
5 × 7 in	67	6 38
5 × 8 in	71	6 80
6½ × 8½ in	84	8 08
8 × 10 in	98	9 35

Are made of strong, heavy translucent paper, through which the negatives can be inspected, thereby making it unnecessary to remove them from the envelope. A great convenience and time saver.

NEGATIVE PRESERVERS.

	Per 100	Per 1000
3½ × 3½ in	$0 25	2 40
3¼ × 4¼ in	25	2 40
4 × 5 in	32	2 88
5 × 7 in	40	3 60
5 × 8 in	45	3 84
6½ × 8½ in	45	4 40
8 × 10 in	67	6 40

These envelopes are made of strong manila paper, the proper size for the negative; they are open at the end for inserting the negative, and have space cut for admitting the thumb and finger in removing it. On the face are printed lines for name, number, description and remarks.

RUBY, ORANGE AND GROUND GLASS.

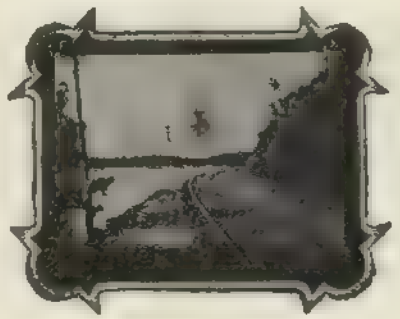
		Ground Glass	Ruby and Orange Glass
4 × 5	in....each	$0 14	.14
5 × 7	in.... "	.21	.21
6½ × 8½	in.... "	.28	28
8 × 10	in.... "	.35	35
10 × 10	in.... "	.49	
10 × 12	in.... "	.53	.49

PURE RUBBER FINGER TIPS.

No. 5—Three in a box..... per set $0.25

Made especially for photographic use. The best ever offered to prevent discoloration of nails and fingers from acids and chemicals. They will not impair the sense of touch. Very easily applied or removed.

MANNING'S MASKS.



No. 3—Assortment contains 12 masks plain, ovals, circles, squares and round corner squares, sizes 3½ × 5½ in., 4¼ × 5¼ in., 4¾ × 5¾ in., and 5 × 7 in., per assortment $0 35

No. 5—Assortment contains 12 designs of stars, shields, fancy circles and other irregular figures. Sizes 3½ × 5½ in., 4¼ × 5¼ in., 4¾ × 5¾ in., and 5 × 7 in., per assortment ... 35

These packages are recommended as first-class and sure to please. Use with ordinary printing frames, according to size of negative.

TRANSPARENT WATER COLORS.

No. 4—Per box containing colors, complete. .....each $0 40

No. 6—Extra colors, per pan. ..... " .10

These colors are prepared exclusively for coloring photographs and lantern slides. They are also well adapted for coloring halftone prints now so common in our popular publications, and which when colored and mounted have a rich and attractive appearance.

The few simple directions accompanying the set are clearly worded and readily understood by even the small boy or girl who may want to color a few magazine pictures. Besides the directions, a list of harmonizing colors accompanies the set.

PADLOCKS.

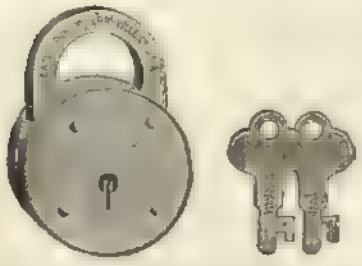
No. 1B. No. 3B.

Polished Wrought Brass.

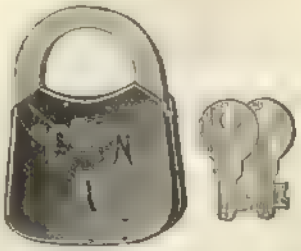
No. 1B—⅝ in., w't per doz. ¾ lb., per dozen $2.00
No. 2B—¾ in., w't per doz. ⅞ lb., per dozen..... 2 20
No. 3B—1 in., fine tumbler, w't per doz. ⅝ lb .....per dozen 2.30
NOS. 1B AND 2B, TWO DOZEN; 3B ONE DOZEN IN A BOX

No 1200—1½ in., polished cast brass, spring shackle, self-locking, 2 flat steel keys, w't per doz. 3 lbs.....per dozen $1.60
ONE DOZEN IN A BOX

No. 915—2 in., wrought steel case, brass plated, self-locking, spring shackle, brass revolving key hub, 2 bent steel keys, 12 changes, w't per doz. 3 lbs., per dozen... $2 60
ONE DOZEN IN A BOX.



No. 882—2 in., wrought steel case, brass plated, self-locking, spring shackle, revolving key hub, 2 flat steel keys, w't per doz. 2½ lbs.....per dozen $2 25
No. 880—2 in., wrought steel case, ivory black finish, self-locking, bright steel spring shackle, 2 secure levers, revolving key hub, 2 bent steel keys, 12 changes, w't per doz. 2½ lbs.....per dozen 2.25
ONE DOZEN IN A BOX.



No. 1206—COON, 2 in., japanned, pressed steel case, 1 tumbler, spring shackle, self-locking, 2 flat steel keys 4 changes, w't per doz. 4 lbs.....per dozen $2 00
ONE DOZEN IN A BOX.

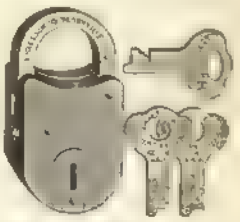
No. 1906—OLD OAK, 2 in., electro-galvanized rust-proof, pressed steel case, self-locking spring shackle, brass pivot studs and key bushing, 2 flat steel keys, 4 changes, w't per doz. 2½ lbs. per dozen $2.50
ONE DOZEN IN A BOX.

No. 1907—2¼ in., all steel case, nickel spring shackle, self-locking, 2 heavy steel barrel formed keys, 2 changes, w't per doz. 4 lbs.....per dozen $3.75
HALF DOZEN IN A BOX.

Self-Locking, Polished Wrought Brass, Lacquered Spring Shackle, Flat Steel Key.

No. 4016—1 in., 4 changes, w't per doz. ¾ lb.....per dozen $2.80
No. 4018—1¼ in., 5 changes, w't per doz. 1 lb .....per dozen 3.00
No. 4020—1½ in., 6 changes, w't per doz. 1½ lbs.....per dozen 3.60
ONE DOZEN IN A BOX.

No. 400—"R. F. D.," 1¼ in., polished wrought brass, lacquered, spring shackle self-locking, 3 flat steel keys, 12 changes, 1 master key to each dozen, w't per doz. 1½ lbs.....per dozen $4.00
Designed for the rural free delivery service.
ONE DOZEN IN A BOX.



No. 300—"R. F. D.," 1¼ in., polished brass case, self-locking, spring shackle, 4 levers, 2 flat steel keys, 150 changes, with master key, w't per doz. 2½ lbs., per dozen..... $6 50
Designed for the rural free delivery service
ONE DOZEN IN A BOX

No. 500—"R.F.D.," 1⅝ in., heavy polished brass case, galvanized steel nickled spring shackle, heavy slotted key cylinder, drain passage, lock cannot freeze up, 2 corugated individual keys, 1 master key with each dozen, 12 changes, w't per doz. 4 lbs... per dozen $4.50
Designed for the rural free delivery service.
ONE IN A BOX, ONE DOZEN IN A CARTON.

No. 4092—1½ in., ivory black steel case, self-locking, brass plated shackle, flat steel key, 5 changes, w't per doz. 1¼ lbs.....per dozen $1.80
ONE DOZEN IN A BOX.

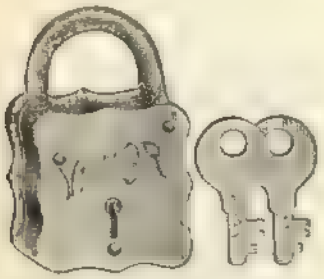
PADLOCKS.

No. 1960—1¼ in., brass plated steel case, self-locking, spring shackle, 2 secure levers, 3 wards, 2 nickel plated flat steel keys, 12 changes, w't per doz. 1⅓ lbs.. ..... per dozen $2.50

HALF DOZEN IN A BOX.

No. 875—1¾ in.. polished wrought brass, raised bushing, self-locking, spring shackle, revolving key hub, 2 flat steel keys, 5 changes, w't per doz. 2½ lbs., per dozen..... $4 00

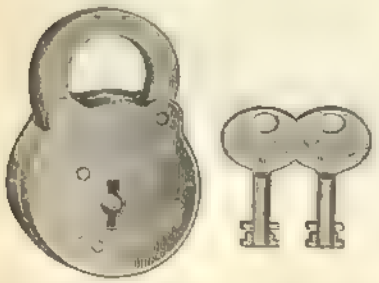
ONE DOZEN IN A BOX.



No. 920—2 in., brass plated wrought steel case, self-locking, spring shackle, 2 secure levers, 3 wards, brass revolving key hub, 2 nickel plated flat steel keys, 12 changes, w't per doz. 4 lbs., per dozen $4 00

No. 925—2¼ in., 4 wards, otherwise same as No. 920, w't per doz. 4½ lbs., per dozen..... 4.50

HALF DOZEN IN A BOX.



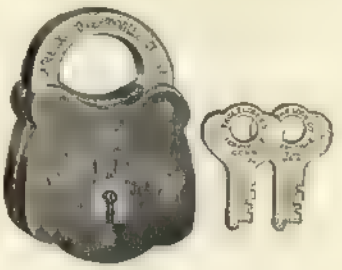
No. 4010—2 in., polished wrought steel case, self-locking, spring shackle, 6 secure levers, 2 double bitted keys, 12 changes, w't per doz. 5 lbs.. per dozen $5.50

No. 4012—2 in., brass plated wrought steel case, self-locking, spring shackle, 6 secure levers, 2 double bitted flat bow keys, 12 changes, w't per doz. 5 lbs., per dozen... 6 00

NO. 4010, ONE DOZEN; NO. 4012, HALF DOZEN IN A BOX.

No. 1945—2¼ in., brass plated wrought steel case, self-locking, spring shackle, 8 secure levers, 2 double bitted flat bow keys, 12 changes, w't per doz. 9 lbs., per dozen..... $8 00

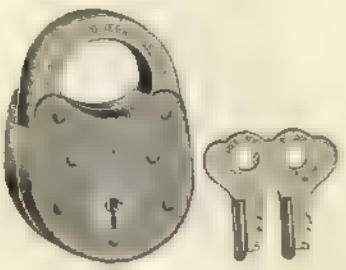
ONE DOZEN IN A BOX.



No. 1904—2 in., steel case, black ivory finish, self-locking, brass plated spring shackle, 6 secure levers, 2 nickel plated flat steel keys, 12 changes, w't per doz. 4 lbs..... per dozen $9 00

No. 01904—2 in , brass case, satin finish, black nickeled steel shackle, otherwise same as No. 1904, w't per doz. 4 lbs., per dozen 11 00

HALF DOZEN IN A BOX.

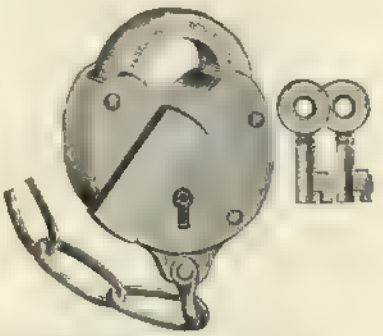


No. 1910—2 in., ivory black wrought steel case, self-locking, nickel plated spring shackle, 6 secure levers, 2 nickel plated corrugated steel keys, w't per doz. 4½ lbs..... per dozen $8.00

HALF DOZEN IN A BOX.

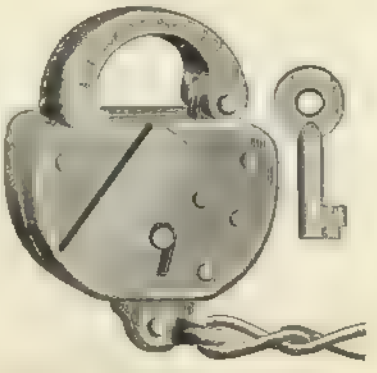
No. 6840—2 in., wrought steel case, antique silver finish, self-locking, heavy polished brass spring shackle, brass rivets and inside mechanism, brass revolving key hub, 4 levers, 2 flat steel keys, 24 changes, w't per doz. 5 lbs.... .....per dozen $11 00

ONE DOZEN IN A BOX.



No. 04151—2¼ in., unpolished cast bronze, self-locking, spring shackle and drop, secure lever and ward, with 9 in. heavy iron chain, 2 bronze keys, 3 changes, w't per doz. 8 lbs. ,per dozen..... $12.50

HALF DOZEN IN A BOX.



No. 4130—3 in., tinned steel, self-locking, cast spring shackle and drop, tumbler and ward, 15 in. heavy iron chain, 1 bronze key, all alike, w't per doz. 11 lbs.. .....per dozen $14.00

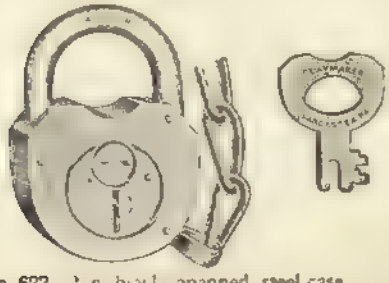
HALF DOZEN IN A BOX.

PADLOCKS.

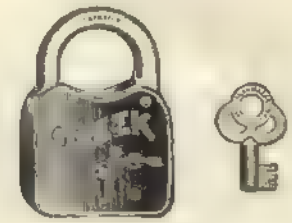
No. 630—2 in. black japanned, steel case, solid malleable iron shackle, formed shell, with large opening, two levers to heel of shackle, nose locking device, with 2 nickel plated drilled barrel keys, 12 changes, w't per doz. 3½ lbs. per dozen $3 00
No. 635—2 in. brass plated finish, otherwise same as No. 630, 12 changes, w't per doz. 3½ lbs.....per dozen 3 00
ONE DOZEN IN A BOX.

No. 632—2 in. black japanned, steel case, solid malleable iron shackle, formed shell, with large opening, two levers to heel of shackle, nose locking device, with 2 nickel plated drilled barrel keys, with 9 in. japanned chain, 12 changes, w't per doz. 4½ lbs .....per dozen $4 50
HALF DOZEN IN A BOX.

No. 620—2 in. black japanned, steel case, solid malleable iron shackle, formed shell, with large opening, two levers to heel of shackle, nose locking device, with 2 flat steel nickel plated keys, 12 changes, w't per doz. 3¾ lbs per dozen $2 75
No. 625—2 in. brass plated finish, otherwise same as No. 620, 12 changes, w't per doz. 3¾ lbs.....per dozen 2 75
ONE DOZEN IN A BOX



No. 622—2 in. black japanned, steel case, solid malleable iron shackle, formed shell, with large opening, two levers to heel of shackle, nose locking device, with 2 flat steel nickel plated keys with 9 in. japanned chain, 12 changes, w't per doz. 4 lbs. ..... per dozen $4.50
ONE DOZEN IN A BOX.

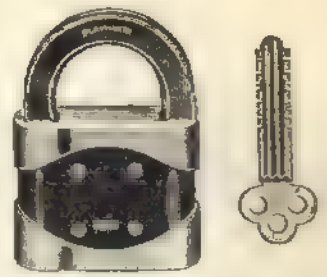


No. 650—GREEK, 1⅛ in. black enameled pressed steel case, self locking spring malleable iron nickeled shackle, with rigid key center and 2 drilled barrel keys, 6 changes, w't per doz. 2½ lbs., per dozen..... $1.80
ONE DOZEN IN A BOX.

No. 670—GREEK, 1¾ in. japanned pressed steel case, self locking, spring nickel plated shackle, 2 drilled barrel keys, rigid key center, 6 changes, w't per doz. 3¼ lbs.....per dozen $2 70
No. 675—GREEK, 1⅞ in., brass plated, otherwise same as No. 670, 6 changes, w't per doz. 3¼ lbs.....per dozen 2 30
ONE DOZEN IN A BOX.

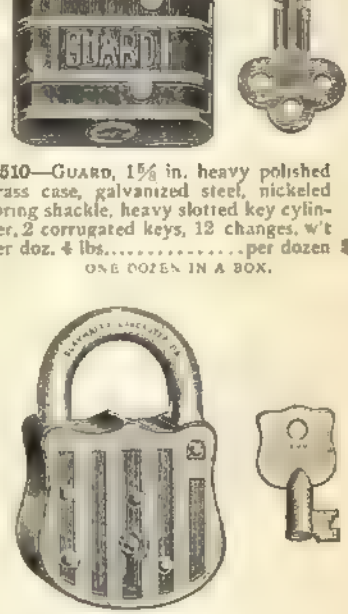
No. 640—YORK, 1½ in. black enameled pressed steel case, self locking, spring malleable iron, nickeled shackle, brass key stud 2 nickeled steel keys, 6 changes w't per doz 2¼ lbs..per dozen 1 50
ONE DOZEN IN A BOX.

No. 660—YORK, 1⅞ in. japanned pressed steel case, self locking, spring nickel plated shackle, brass key bushing, 2 keyed, 6 changes, w't per doz. 3 lbs., per dozen..... $2.00
No. 665—YORK, 1⅞ in. brass plated, otherwise same as No. 660, 6 changes, w't per doz. 3 lbs.....per dozen $2.00
ONE DOZEN IN A BOX



No. 750—2¼ in. enameled steel case, brass trimmed, brass plated, malleable iron shackle, slotted key cylinder 2 nickeled corrugated steel keys, 12 changes, w't per doz. 5 lbs...per dozen $6.50
HALF DOZEN IN A BOX.

No. 510—GUARD, 1⅝ in. heavy polished brass case, galvanized steel, nickeled spring shackle, heavy slotted key cylinder, 2 corrugated keys, 12 changes, w't per doz. 4 lbs.....per dozen $4.00
ONE DOZEN IN A BOX.



No. 695—2¼ in. brass plated steel case, compressed steel self-locking spring shackle, with steel key stud, greatly increased security and durability, 2 barrel keys, lever lock, 6 changes, w't per doz. 4½ lbs.....per dozen $3 30
ONE DOZEN IN A BOX.

No. 685—2 in. brass plated drawn steel case, self locking, spring lever, nickeled malleable iron spring shackle, 2 drawn steel self-cleaning barrel keys, brassed, 6 changes, w't per doz. 3½ lbs., per dozen $2 75
HALF DOZEN IN A BOX.

PADLOCKS.

No 16 No. 21.

Steel Case, Enameled Black, Self-Locking, Nickel Plated Spring Shackle, Revolving Key Hub, Two Flat Steel Keys.

No. 16 —1 1/16 in., 6 changes, w't per doz. 1 lb . . . . . per dozen $1.50
No. 18 —1 1/4 in., 6 changes, w't per doz. 1 1/2 lbs . . . . . per dozen 1.80
No. 19 —1 1/4 in., 6 changes, w't per doz. 1 5/16 lbs . . . . . per dozen 2.40
No. 21 —2 in., 12 changes, w't per doz 2 1/4 lbs . . . . . per dozen 3.00
No. 22 —2 3/8 in., 24 changes, w't per doz. 4 3/4 lbs. . . . . per dozen 4.20
No. 18B—Case and shackle brass plated, otherwise same as No. 18. . . per dozen 2.16
No. 19B—Case and shackle brass plated, otherwise same as No. 19. . . . per dozen 3.00
No. 21B—Case and shackle brass plated, otherwise same as No. 21. . . . per dozen 3.60

NOS. 16, 18, 19, 18B, 19B, ONE DOZEN IN A BOX.
NOS. 21, 22, 21B, HALF DOZEN IN A BOX.

No. 4402—2 in., wrought steel case, ivory black finish, self-locking, spring shackle, secured, 4 levers, revolving key hub, 2 flat steel keys, 12 changes, w't per doz., 3 lbs. . . . . per dozen $4 50

HALF DOZEN IN A BOX.

No. 214—1 1/2 in., polished cast brass case, self-locking, spring shackle, 2 nickel plated flat steel keys, 6 changes, w't per doz. 2 1/4 lbs. . . . . per dozen $3.75
No. 221—1 3/4 in., otherwise same as No. 214, w't per doz. 4 lbs. . . . . per dozen 5.50

HALF DOZEN IN A BOX.

No. 110B—2 1/8 in., wrought steel case, brass plated, self-locking, spring shackle, brass revolving key hub, 2 nickel plated flat steel keys, 24 changes, w't per doz. 5 lbs. . . . . per dozen $3.75

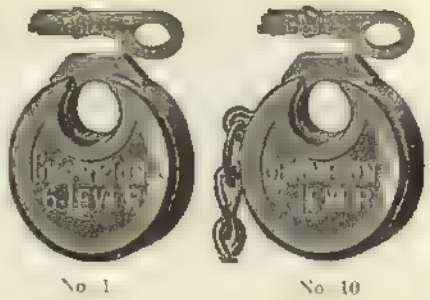
HALF DOZEN IN A BOX.

No. 250—3 in., wrought steel case, black japanned finish, self-locking, new automatic lever, malleable spring shackle, 2 flat nickeled keys, 6 changes, w't per doz. 2 1/2 lbs. . . . per dozen $3.60

HALF DOZEN IN A BOX.

No. 895—2 in. steel case, chemical black finish, self-locking, polished steel spring shackle, 6 levers, brass inside mechanism and revolving key hub, 2 flat steel keys, innumerable changes, w't per doz. 4 lbs . . . . . per dozen $7.50

HALF DOZEN IN A BOX.



No 1 No 10

No. 1—CHAMPION, 2 1/4 in., polished cast bronze metal case, self-locking, 6 levers, brass inside mechanism, phosphor bronze springs, 2 nickel plated steel keys, 12 changes, w't per doz. 6 lbs per dozen. $11.40
No. 10—CHAMPION, *with tinned steel chain*, otherwise same as No. 1, w't per doz 7 lbs. . . . . per dozen 14.40

HALF DOZEN IN A BOX.

No 79.

No. 79 —2 1/8 in., cast brass case, self-locking, spring shackle, spring drop, 2 brass keys, with chain, 12 changes, w't per doz. 5 1/2 lbs. . . . . per dozen $12.00
No. 79 1/2—Keys all alike, otherwise same as No. 79, w't per doz 5 1/2 lbs., per dozen. 12 00
No. 89 —2 1/8 in., switch lock, rough cast brass, otherwise same as No. 79, w't per doz. 7 lbs . . . . . per dozen 16 00

HALF DOZEN IN A BOX

No. 877—2 in. wrought steel case, brass plated, self-locking, spring shackle, brass revolving key hub, 2 nickel plated flat steel keys, 12 changes, w't per doz. 3 1/2 lbs . . . . . per dozen $3.25

HALF DOZEN IN A BOX.

PADLOCKS.

"OUR VERY BEST."

No. 200 ~~O.V.B.~~—2 in. hard cast bronze case, highly polished, self-locking bronze metal spring shackle, brass and bronze inside mechanism, pin tumblers, positive lock, 2 German silver heavy corrugated keys, unlimited changes, w't per doz. 6 lbs.....per dozen $28 00
No. 200 ~~O.V.B.~~—With master key ★, per dozen..... 32 00

★*FACTORY SHIPMENT ONLY*

HALF DOZEN IN A BOX

No. 100 ~~O.V.B.~~—2½ in., cast bronze case, with ground surfaces and oxidized background, cast bronze spring shackle, double lock bolts, locking both ends of shackle, 4 levers, all inner works brass, 2 flat steel ribbed keys, 48 changes, w't per doz. 4½ lbs., per dozen..... $9.00

HALF DOZEN IN A BOX.

No. 1000—RED CHIEF, 2⅛×2⅝ in., heavy malleable steel case, full brass plated, with red background, brass plated wrought iron spring shackle, brass keyway, 2 flat steel keys, 6 changes, indestructible, w't per doz. 5½ lbs.....per dozen $5.00

HALF DOZEN IN A BOX.

No. 825—2½ in., cast phosphor bronze case, polished pin tumbler, bronze spring shackle, 2 embossed German silver keys, all different, w't per doz. 11¼ lbs.....per dozen $27.00

HALF DOZEN IN A BOX.

No. 1940—"U. S. A.," 2 in., steel case, ivory black finish, self-locking, brass plated spring shackle, 6 secure levers, 2 nickel plated flat steel keys, 12 changes, w't per doz. 5 lbs., per dozen $10.00

HALF DOZEN IN A BOX.

DISPLAY AND STOCK CASES.

No. 20—21×11×8½ in., hardwood, cherry stained, with four varnished maple face drawers, having 3 compartments each, provided with brass cup hooks.

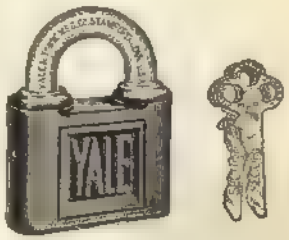
Write for particulars.

No. 840—1¾ in., bronze metal case, self-locking, steel spring shackle and inside mechanism, 5 tumblers, 2 paracentric keys, unlimited changes, w't per doz. 9 lbs.....per dozen $35.75
No. 850—2 in., otherwise same as No. 840, w't per doz. 9¼ lbs....per dozen 43.70

HALF DOZEN IN A BOX.

No. 870—2½ in., bronze metal case, self-locking, steel spring shackle and inside mechanism, 5 tumblers, 2 German silver corrugated keys, unlimited changes, w't per doz. 24 lbs..per doz. $65.50

HALF DOZEN IN A BOX.



No. 803F—1½ in., rustless cast iron case, self-locking, bronze metal spring shackle and inside mechanism, 3 tumblers, 2 flat steel keys, 36 changes, w't per doz. 3⅛ lbs.....per dozen $17.90
No. 805F—2 in., 144 changes, 4 tumblers, otherwise same as No. 803F, w't per doz. 8 lbs.....per dozen 17.90

HALF DOZEN IN A BOX

PADLOCKS.

No. 905—2 in., heavy cast iron case, self-locking, wrought bronze spring shackle, 4 tumblers, 2 fluted keys, 144 changes, w't per doz. 8 lbs., per dozen $21.85
HALF DOZEN IN A BOX.

No. 743S—1½ in., rustless steel case, self-locking, steel spring shackle, brass inside mechanism, 2 German silver corrugated keys, 36 changes, w't per doz. 3 lbs.....per dozen $10.85
No. 745S—2 in., 144 changes, 4 tumblers otherwise same as No. 743S, w't per doz. 4 lbs.. per dozen 21.85
HALF DOZEN IN A BOX.

No. 813. No. 863.

Polished Cast Bronze Metal, Self-Locking, Spring Shackle.

No. 800—¾ in., 3 brass tumblers, 2 corrugated keys, 24 changes, w't per doz. 1½ lbs.....per dozen $20.75
No. 813—1 in., 3 brass tumblers, 2 nickel plated flat steel keys, 54 changes, w't per doz. 2 lbs.....per dozen 20.00
No. 833—1¾ in., 3 brass tumblers, 2 nickel plated flat steel keys, 48 changes, w't per doz. 4 lbs.....per dozen 25.00
No. 853—2 in., 4 brass tumblers, 2 nickel plated flat steel keys, 144 changes, w't per doz. 7 lbs.....per dozen 31.00
No. 863—2¼ in., 4 brass tumblers, 2 nickel plated flat steel keys, 144 changes, w't per doz. 8¾ lbs. per dozen 38.50
No. 873—2½ in., 4 brass tumblers, 2 nickel plated flat steel keys, 144 changes, w't per doz. 13 lbs., per dozen 57.05
HALF DOZEN IN A BOX.

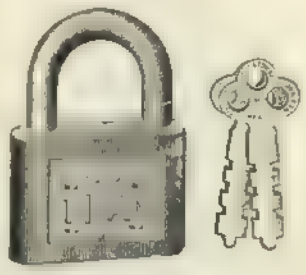
No. 743V—1½ in., bronze metal case, self-locking, steel spring shackle, brass inside mechanism, 3 tumblers, 2 German silver corrugated keys, 36 changes, w't per doz. 3 lbs..per dozen $23.85
No. 745V—2 in., 144 changes 4 tumblers, otherwise same as No. 743V, w't per doz. 4 lbs.....per dozen 25.80
HALF DOZEN IN A BOX.

No. 8434—1½ in., rustless seamless wrought steel case, self-locking, forged steel spring shackle, 3 tumblers, 2 nickel plated steel keys, 48 changes, w't per doz. 2⅝ lbs.....per dozen $16.90
No. 8454—2 in., 144 changes, 4 tumblers, otherwise same as No. 8434, w't per doz. 6 lbs.....per dozen 20.85
HALF DOZEN IN A BOX.

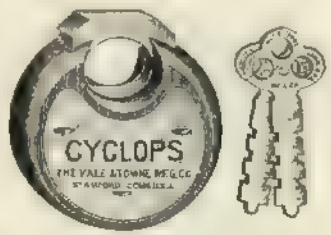
No. 633—1½ in., black enameled steel case, self-locking plated steel shackle, brass inside mechanism, 5 lever tumblers, 2 nickel plated flat steel keys, 18 changes, w't per doz. 3½ lbs., per dozen.....$10.95
No. 625—2 in., otherwise same as No. 633, w't per doz. 6½ lbs....per dozen 12.95
HALF DOZEN IN A BOX.

No. 646J—2 in., ivory black steel case, nickel plated steel spring shackle, self-locking, 3 lever tumblers, 12 changes, 2 nickel plated steel keys, w't per doz. 3 lbs.....per dozen $4.80
HALF DOZEN IN A BOX.

No. 684J—1¾ in., ivory black steel case self-locking, brass plated spring shackle, brass rivets and inside mechanism, revolving key hub, nickel plated flat steel key, 12 changes, w't per doz. 1½ lbs., per dozen..... $3.00
ONE DOZEN IN A BOX.



No. 225—2 in., cast iron case, bowerbarff finish, panels of wrought steel heavily brass plated and scratch brushed, brass plated steel shackle, wrought steel inside mechanism, 2 nickel plated flat steel keys, 4 changes, w't per doz. 3½ lbs.....per dozen $7.95
ONE DOZEN IN A BOX



No. 215—Cyclops, 2⅛ in., cast iron case, Nubian finish, brass plated and scratch brushed, wrought steel caps, malleable iron shackle, 2 nickel plated flat steel keys, 6 changes, w't per doz. 8 lbs per dozen.....$7.95
HALF DOZEN IN A BOX.

No. 326—Lenox, 2½ in., cast iron case, Nubian finish, steel shackle, old copper finish steel face, 2 nickel plated flat steel keys, 6 changes, w't per doz. 8¼ lbs., per dozen.....$11.95
HALF DOZEN IN A BOX.

PADLOCKS.

No. 805½F—2 in., bronze metal case, self-locking, bronze spring shackle and inside mechanism, 4 tumblers, 2 flat steel keys, 9 in. galvanized iron chain, 144 changes, wt per doz. 9 lbs per dozen..... $20 90

HALF DOZEN IN A BOX

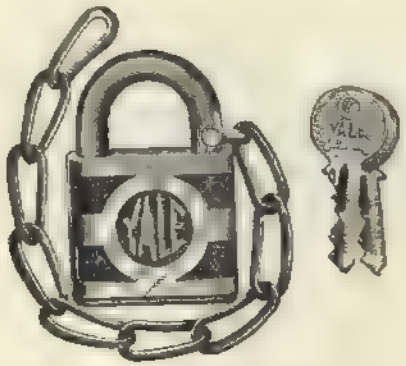
No. 853½—2 in., polished cast bronze metal case, self-locking, bronze spring shackle, 4 brass tumblers, 2 nickel plated flat steel keys, 9 in. chain, 144 changes, w't per doz. 8 lbs.. per dozen $33 2

No. 863½—2¼ in., otherwise same as No. 853½, w't per doz. 9½ lbs., per dozen 42 70

HALF DOZEN IN A BOX

No. 0000—2 in., japanned case, 1 key, w't per doz. 2 lbs..... .....per dozen $2.50

ONE DOZEN IN A BOX.



No. 850½—2 in., rustless iron case, self-locking steel spring shackle, and inside mechanism, 5 tumblers, 2 paracentric keys, 9 in. galvanized iron chain, unlimited changes, w't per doz. 10½ lbs..... per dozen $47.70

HALF DOZEN IN A BOX.

No. 3052—2½ in., solid iron japanned case, polished malleable iron hasp, secured, wrought iron tumblers, 2 nickel plated flat steel keys, 12 changes, w't per doz. 9 lbs.....per dozen $8 80

HALF DOZEN IN A BOX

No. 000

No. 000—2½ in., japanned case, raised bushing, without drop, 1 key, w't per doz. 3½ lbs., ... per dozen $2.70

No. 00—2¼ in., japanned case, brass drop, 1 key, w't per doz. 3½ lbs., per dozen..... 3 25

No. 00—With 2 keys.....per dozen 3.75

NO. 000, ONE DOZEN; NO. 00, HALF DOZEN IN A BOX

No. 905½—2 in., rustless iron case, self-locking, bronze metal spring shackle and inside mechanism, 4 tumblers, 2 corrugated steel keys, 9 in, galvanized iron chain, 144 changes, w't per doz. 9 lbs.,.....per dozen $24.85

HALF DOZEN IN A BOX.

No. 3053—1¾ in., solid iron japanned case, malleable iron hasp, secured, wrought iron tumblers, 2 nickel plated flat steel keys, japanned iron chain, 12 changes, w't per doz. 7 lbs...per dozen $9.60

No. 3054—2¼ in., otherwise same as No. 3053, w't per doz. 10 lbs..per dozen 10.80

HALF DOZEN IN A BOX.

No. 2—2½ in. japanned case, brass drop and bushing, 4 changes, 1 key, w't per doz 5 lbs.....per dozen $4 40

No. 2—With 2 keys..... " 5.60

HALF DOZEN IN A BOX

PADLOCKS.

No. 3—2¼ in., japanned case, brass drop and bushing, 4 changes, 1 key, w't per doz. 5 lbs.....per dozen $1.65

HALF DOZEN IN A BOX.

No. 5—2¼ in., japanned case, brass drop and bushing, heavy, 2 wheels, side wards, 12 changes, 2 keys, w't per doz. 6 lbs.....per dozen $6 60

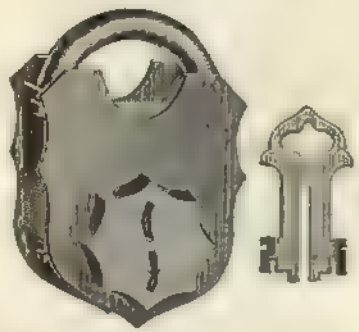
HALF DOZEN IN A BOX

No. 7—2¾ in., japanned case, brass drop and bushing, heavy, 2 wheels, side and bridge wards, 12 changes, 2 keys, w't per doz. 9 lbs.....per dozen $10.00

HALF DOZEN IN A BOX.

No. 3017—2½ in., japanned case, brass drop and bushing, patent rotating key hub, 2 solid steel keys, 12 changes, w't per doz. 5½ lbs.....per dozen $7.70

HALF DOZEN IN A BOX



No. 3026—2½ in., japanned case, fancy brass bushed, double chamber, revolving key pin, 2 double bitted steel keys, 12 changes, w't per doz. 7¾ lbs., per dozen..... $9.20

HALF DOZEN IN A BOX.

No. 3027—2¼ in., japanned case, fancy brass bushed, double chamber, revolving key pin, 2 double bitted steel keys, w't per doz 5 lbs . . per dozen $7 95

HALF DOZEN IN A BOX.

No. 14—2½ in., japanned case, extra fine, brass drop and bushing, spring shackle, with chain, 1 key, 6 changes, w't per doz. 8 lbs.....per dozen $8 35

HALF DOZEN IN A BOX.

No. 3066—2¼ in., japanned case, brass bushed, double chamber, self-locking, spring shackle, revolving key pin, with chain, 1 double bitted steel key, 12 changes, w't per doz. 6 lbs...per dozen $8 75

HALF DOZEN IN A BOX

No. 3065—2¼ in., japanned case, brass drop and bushing, side ward, flat spring shackle, with chain, 2 keys, 12 changes, w't per doz. 5¾ lbs., per dozen..... $10.75

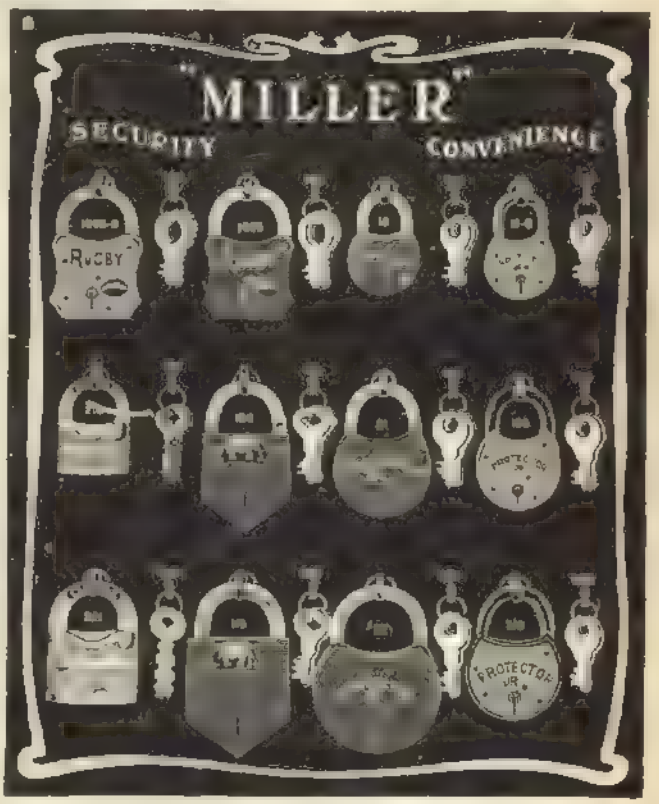
HALF DOZEN IN A BOX.

No. 3029—2½ in., japanned case, extra fine, fancy engraved drop, brass rivets, 2 tumblers, spring shackle, 3 bridge wards, with chain, 2 keys, 12 changes, w't per doz. 9 lbs..... per dozen $16 50

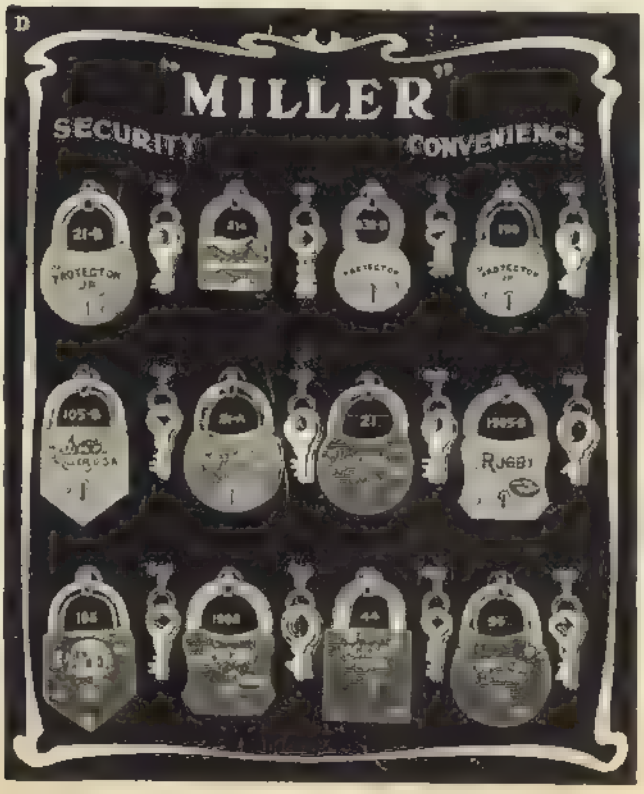
HALF DOZEN IN A BOX

PADLOCK ASSORTMENTS.

No. 1505.



No 1500.



No. 1520

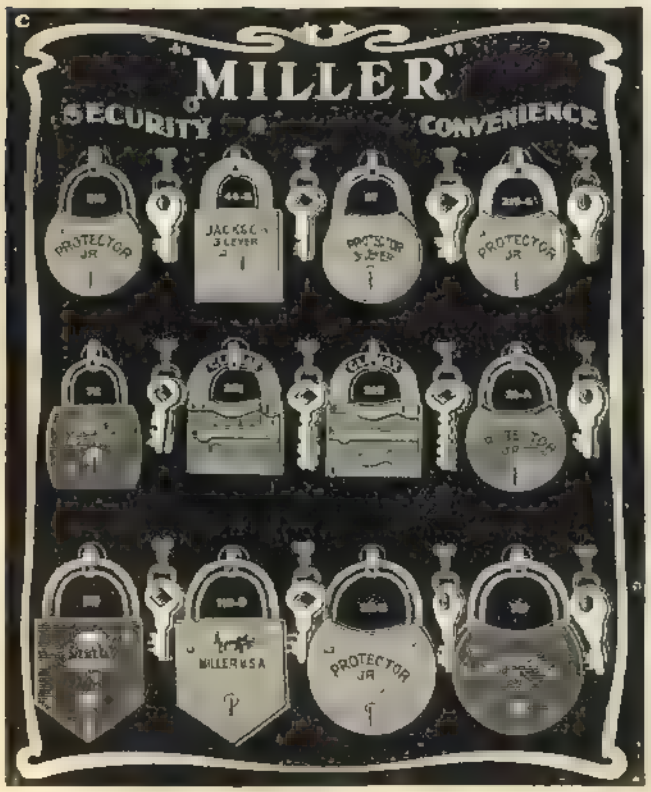
No. 1505 Assortment—Consisting of twelve 2 in. padlocks, Rugby pattern, four of each japanned old copper and brass plated, steel cases self locking, spring shackles flat steel keys, and brass revolving key hubs on heavy ornamental card 13×16 in., w't per assm't 3 lbs.....per card $2 25

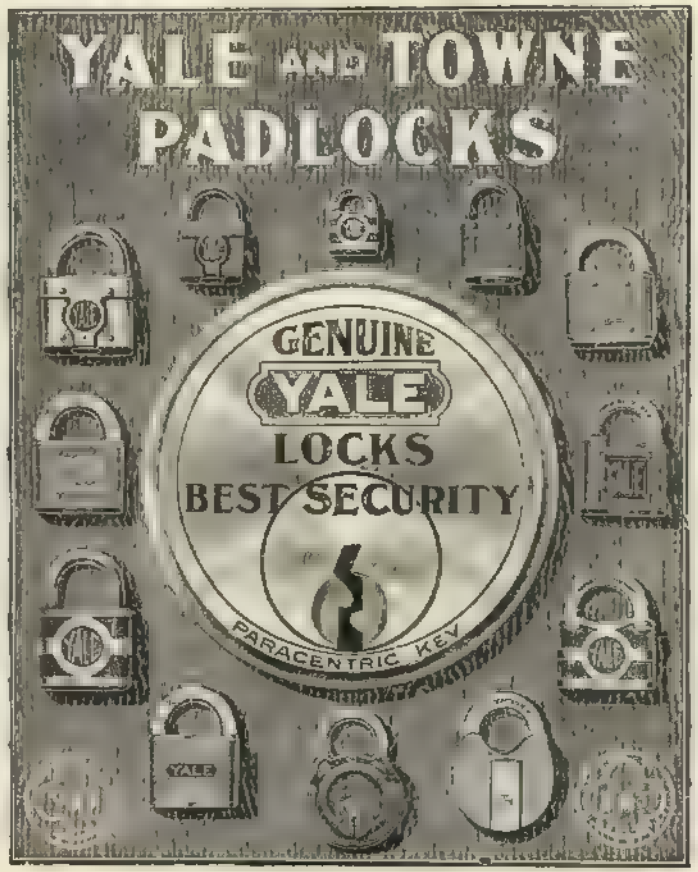
No. 1520 Assortment—Consisting of 12 padlocks, one 1½ in polished cast brass case one 2 in old copper finished steel case and shackle one 1¾ in and four 2 in japanned steel cases, one has steel spring shackle, the others plain malleable iron, one 1½ in and three 2 in brass plated steel cases, one has steel spring shackle the others malleable iron one 1¾ in wrought brass case with malleable iron shackle all are self locking, spring shackles and with exception of cast brass padlocks has brass revolving key hubs flat steel keys, on heavy ornamental card 13×16 in w't per assm't 5¼ lbs .....per card $3.50

No. 1500 Assortment—Consisting of 12 padlocks, one each 1½ and 2 in. polished brass cases, three 2 in and one each 1½ 2½ and 2½ in. japanned steel cases, one each 1½ and 2 in. brass plated steel cases, one each 1¾ and 2 in. wrought brass cases, all have flat steel keys, and with exception of brass padlocks have brass revolving key hubs, self locking, spring shackles, on heavy ornamental card 13×16 in. w't per assm't 3½ lbs ...per card $4 00

PADLOCK ASSORTMENTS.

No. 1530.





No. 1400.

No. 1530 Assortment—Consisting of 12 padlocks, three each of 4 different patterns 2 in. wrought brass cases, with japanned spring shackles self locking, with flat steel keys, and brass revolving key hubs on heavy ornamental card 13×16 in., w't per assm't 4 lbs per card $5.00

No. 1510 Assortment—Consisting of 12 padlocks two cast brass 2 in cases three japanned steel cases one each 1¾, 2¼ and 2½ in, three brass plated steel cases one each 1¾, 2¼ and 2½ in, two of these have iron shackles the other flat steel, three wrought brass 2 in cases the shackles of these are plain, brass plated and japanned, one padlock old copper finished 2 in. case, with old copper shackle self locking spring shackles with flat steel keys, and with exception of brass padlocks have brass revolving key hubs, on heavy ornamental card 15×16 in., w't per assm't 4½ lbs..... per assortment $5 00

No. 1400 Assortment—Consisting of 12 padlocks, five 2 in. and one 1 in. bronze metal cases, two of these have steel shackles, the others brass two 1¾ in and one 2 in wrought brass cases one 2 in. polished brass case and shackle with 2 brass barrel keys, and spring drop one 2 in. iron black steel case, one 2 in. rustless cast iron case with bronze metal spring shackle, four of these padlocks have German silver corrugated keys, seven have flat steel keys, one has barrel keys, on heavy ornamental card 15×19 in., w't per assm't 6¾ lbs...per assm't $20 00

PADLOCK ASSORTMENTS.

Swastika Pattern.

No. 1177 Assortment—Consisting of 12 padlocks, Swastika pattern, four each 1½, 2 and 2½ in. wrought steel japanned cases with brass revolving brass plated spring shackle, self locking, 2 flat steel keys with each lock, on heavy ornamental card 11¾ x 17 in., w't per assortment 5½ lbs. . . . per assortment $2 75

No. 1550 Assortment—Consisting of twelve 2 in. padlocks, four are japanned, wrought steel cases, four are brass plated, four are plated, six padlocks have brass plated steel, barrel keys, six have flat steel keys on heavy ornamental card 11¾ x 7 in., w't per assortment 3¼ lbs. . . . . per assortment $1 50

No. 08 Assortment—Consisting of one dozen, four No. 11, four No. 12 and four medium size, smaller than No. 11, on easel back card, w't per assortment ¼ lb. . . . per assortment $2 25

No. 1540 Assortment—Consisting of one dozen padlocks, assorted ½, ⅝, ¾ and 1 in., nickel plated brass, on easel back card, w't per assortment ¾ lb. . . . per assortment $2 50

PADLOCK ASSORTMENTS.

RETAILERS' COMBINED PADLOCK DISPLAY AND STOCK CASES.

No. M1000 Assortment—Consists of 13⅔ dozen padlocks (as described below) retail value $34.40; including handsome display cabinet, w't per assm't 54 lbs..... per assortment $15.00

First Row.

1 dozen each four kinds, 1½ in. brass plated and japanned padlocks, price 10 cents.

Second Row.

½ dozen each four kinds, 1⅝ and 1¾ in. brass plated and japanned padlocks, price 15 cents.

Third Row.

1 dozen each two kinds, and ½ dozen each two kinds, 2 in. brass plated and japanned padlocks, price 25 cents.

Fourth Row.

½ dozen each four kinds 2 in. brass plated and japanned padlocks, price 25 cents.

Fifth Row.

¼ dozen each four kinds, 2 in. cases, ⅛ dozen are brass cases, ¼ dozen are japanned, and ¼ dozen are steel and bronze, price 50 cents.

12 dozen padlocks in stock, 20 padlocks on display board, making total of 13⅔ dozen.

This case is made of hard wood, nicely finished, size 13×25×6 in. The front is hinged, and provided with a cupboard catch. The cabinet has three shelves, holding conveniently about 20 dozen padlocks. We list two different assortments, with varying quantities of the padlocks illustrated.

No. M1001 Assortment—Consists of 7⅔ dozen padlocks (as described below) retail value $19.70; including handsome display cabinet, w't per assm't 37 lbs.....per assortment $28.00

First Row.

½ dozen each four kinds, 1½ in. brass plated and japanned padlocks, price 10 cents.

Second Row.

½ dozen each four kinds, 1⅝ and 1¾ in. brass plated and japanned padlocks, price 15 cents

Third Row.

½ dozen each two kinds, and ¼ dozen each two kinds, 2 in. brass plated and japanned padlocks, price 25 cents.

Fourth Row.

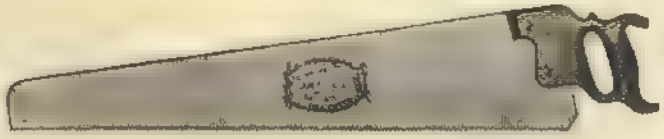
¼ dozen each four kinds, 2 in. brass plated and japanned padlocks, price 25 cents.

Fifth Row.

¼ dozen brass cases, ⅛ dozen steel and bronze cases, and ⅓ dozen japanned cases, all are 2 in., price 50 cents.

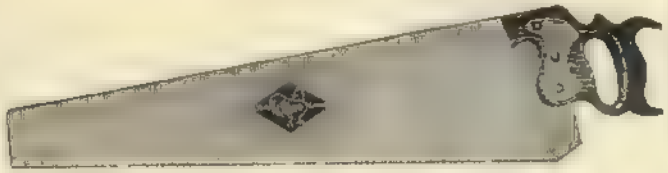
6 dozen padlocks in stock, 20 padlocks on display board, making total of 7⅔ dozen.

HAND AND RIP SAWS.



No. 50—SAM SICKLES' 26 in., hand, cast steel, beech handle, polished edge, 3 screws, 5, 6, 7, 8 and 9 points, w't per doz. 21 lbs., per dozen..... $8.00

HALF DOZEN IN A BOX.



"Cruso," 26 in., hand, cast steel, polished black walnut handle, 3 screws, raised steel plate, 5, 6, 7, 8 and 9 points, w't per doz. 21 lbs.....per dozen $10.00

HALF DOZEN IN A BOX.

No. 60—DEXTER, 26 in., combination hand, with 24 in. square and rule, straight edge, 3 screws, 6, 7, 8 and 9 points, w't per doz. 20 lbs .....per dozen $ 8 80

HALF DOZEN IN A BOX

"I Will," 26 in., *hand*, cast steel grained blade, etched, skew back, polished beech handle, 4 screws, 5, 6, 7, 8, 9 and 10 points, w't per doz. 22 lbs.....per dozen $12.00

"I Will," 28 in., *rip*, cast steel grained blade, etched, skew back, polished beech handle, 4 screws, 4½, 5, 5½ and 6 points, w't per doz. 27 lbs.....per dozen 16 00

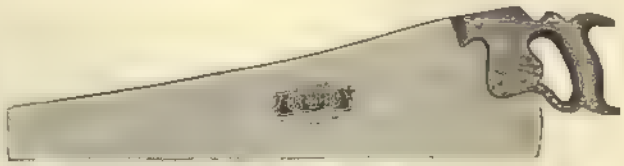
ONE-THIRD DOZEN IN A BOX.

"U. S. A.," 26 in., *hand*, finest quality blued steel blade, patent ground and tempered, polished skew back, carved and polished apple handle, 4 nickel plated raised screws, fully warranted, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 29 lbs.....per dozen $24.00

"U. S. A.," 28 in., *rip*, finest quality blued steel blade, patent ground and tempered, polished skew back, carved and polished apple handle, 4 nickel plated raised screws, fully warranted, 5, 5½ and 6 points, w't per doz. 29 lbs.....per dozen 24 00

"U. S. A.," 28 in., *rip*, 4½, 5, 5½ and 6 points, otherwise same as above, w't per doz. 33 lbs.....per dozen 28.00

ONE IN A BOX.

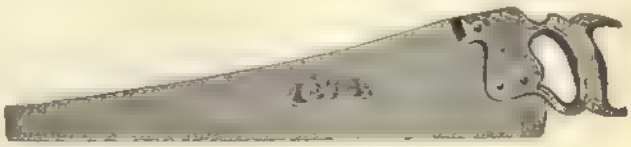


No. 82—"OUR VERY BEST," 26 in., *hand*, extra cast steel grained blade, skew back, apple handle, polished and etched, 4 plated brass screws, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 25 lbs., per dozen..... $24 00

No. 82— "OUR VERY BEST" 26 in., *rip*, extra cast steel grained blade, skew back, apple handle, polished and etched, 4 plated brass screws, 5, 5½ and 6 points, w't per doz. 23 lbs., per dozen..... 24.00

No. 82—"OUR VERY BEST," 28 in., *rip*, 4½, 5, 5½ and 6 points, otherwise same as above, w't per doz. 25 lbs.....per dozen 28.00

Ship pattern is about one inch narrower than hand, the full length of saw.



No. 82—"OUR VERY BEST," 26 in., *ship carpenters' hand*, extra cast steel grained blade, apple handle, polished and etched, 4 plated brass screws, 7, 8, 9, 10 and 12 points, w't per doz. 19 lbs. per dozen..... $24.00

ONE-THIRD DOZEN IN A BOX.

No. 17—"OUR VERY BEST," 26 in., *special hand*, extra cast steel grained blade, straight back, carved cherry handle, 4 nickel plated screws, 6, 7, 8, 9, 10 and 12 points, w't per doz. 25 lbs., per dozen..... $27 00

ONE IN A BOX

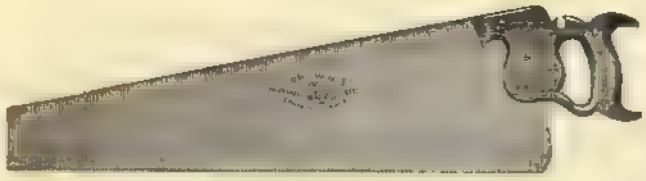
No. 18—"OUR VERY BEST," 26 in., *special hand*, extra cast steel grained blade, sway back, carved sweet mountain cherry handle, 4 brass screws, 6, 7, 8, 9, 10 and 12 points, w't per doz. 24½ lbs., per dozen..... $28 00

ONE IN A BOX.

"Rev-o-noc," 26 in., *hand*, cast steel blued blade, etched, skew back, polished beech handle, 4 screws, 6, 7, 8, 9 and 10 points, w't per doz. 24 lbs.....per dozen $15.00

ONE-THIRD DOZEN IN A BOX

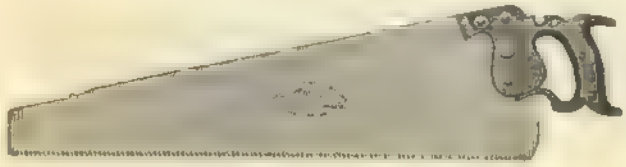
HAND AND RIP SAWS.



No. 3—26 in., BROWN'S, *hand*, grained blade, beech handle, polished edge, 4 screws, full width, 5, 6, 7, 8 and 9 points, w't per doz., 27 lbs.....per dozen $13.50

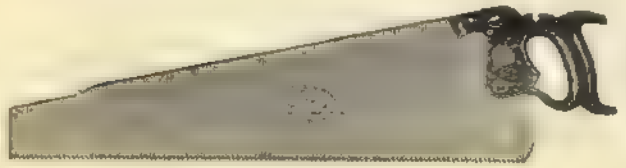
No. 3—28 in., BROWN'S, *rip*, grained blade, beech handle, polished edge 4 screws, full width, 4½, 5 and 5½ points, w't per doz 29 lbs.....per dozen 16 50

ONE-THIRD DOZEN IN A BOX.



No. 107—26 in., KEYSTONE, *hand*, cast steel, grained blade, etched, and warranted, beech handle, polished edge, 4 screws, 5, 6, 7, 8, 9 and 10 points, w't per doz. 25 lbs.....per dozen $17.50

ONE-THIRD DOZEN IN A BOX.

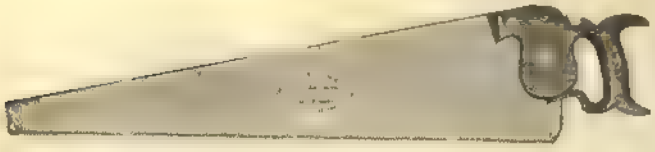


No. 7—26 in., DISSTON'S, *hand*, cast steel, grained blade, thin back, etched, beech handle, polished edge, 4 improved screws, 5, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 24 lbs.....per dozen $20.00

No. 7—28 in., DISSTON'S, *hand*, 6, 7 and 8 points, otherwise same as above, w't per doz. 30 lbs.....per dozen 23.50

No. 7—28 in., DISSTON'S, *rip*, cast steel, grained blade, etched, beech handle, polished edge, 4 improved screws, 4, 4½, 5, 5½ and 6 points, w't per doz. 30 lbs.....per dozen 23 50

ONE-THIRD DOZEN IN A BOX.



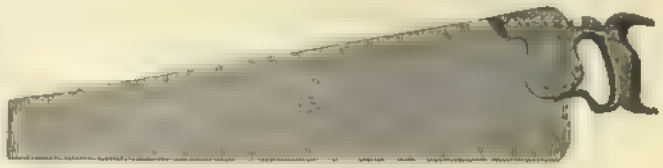
No. 7S—26 in., DISSTON'S, Ship pattern, *hand*, cast steel, grained blade, thin back, etched, beech handle, polished edge, 4 improved screws, 7, 8, 9 and 10 points, w't per doz. 24 lbs.....per dozen $20.00

ONE-THIRD DOZEN IN A BOX.

No. 7S—26 in., DISSTON'S, *hand*, cast steel, skew back, polished apple handle, 4 screws, 6, 7, 8, 9, 10 and 12 points, w't per doz. 26 lbs.....per dozen $21.00

No. 7S—28 in., DISSTON'S, *rip*, cast steel, skew back, polished apple handle, 4 screws, 4½, 5, 5½ and 6 points, w't per doz. 28 lbs., per dozen..... 24.50

ONE-THIRD DOZEN IN A BOX.



No. 8—26 in., DISSTON'S, *hand*, spring steel, grained blade, etched, apple handle, polished edge, 4 improved screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 24 lbs.. per dozen $21.50

No. 8—28 in., DISSTON'S, *rip*, spring steel, grained blade, etched, apple handle, polished edge, 4 improved screws, 4½, 5, 5½ and 6 points, w't per doz. 31 lbs.....per dozen 24.50

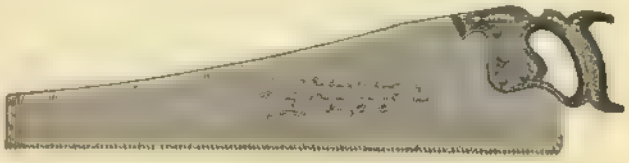
ONE-THIRD DOZEN IN A BOX

No. D8—26 in., DISSTON'S, *hand*, cast steel, grained blade, etched, skew back, apple handle, polished edge, 5 improved screws, 6, 7, 8, 9, 10, 11 and 12 points, w't per doz. 24 lbs.....per dozen $22.50

No. D8—26 in., DISSTON'S, *rip*, cast steel, grained blade, skew back, apple handle, polished edge, 5 improved screws, 5, 5½ and 6 points, w't per doz. 27 lbs.....per dozen 22.50

No. D8—28 in., DISSTON'S, *rip*, 4, 4½, 5, 5½ and 6 points, otherwise same as above, w't per doz. 30 lbs.....per dozen 25.50

ONE-THIRD DOZEN IN A BOX.



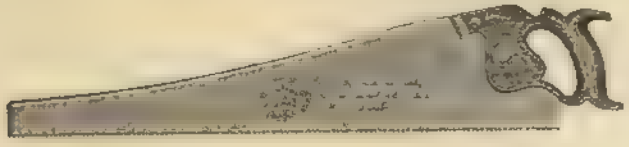
No. D100—26 in., DISSTON'S, *hand*, spring steel, patent ground and tempered blade, etched, skew back, carved apple handle, polished, 5 improved screws, 7, 8, 9, 10, 11 and 12 points, w't per doz 25 lbs.....per dozen $25 00

No. D100—28 in., DISSTON'S, *rip*, spring steel, patent ground and tempered blade, etched, graduated teeth, skew back, carved apple handle, polished 5 improved screws, 4½, 5, 5½ and 6 points, w't per doz. 29 lbs.....per dozen 28.00

ONE-THIRD DOZEN IN A BOX

HAND, RIP AND PLUMBERS' SAWS AND SAW SCREWS.

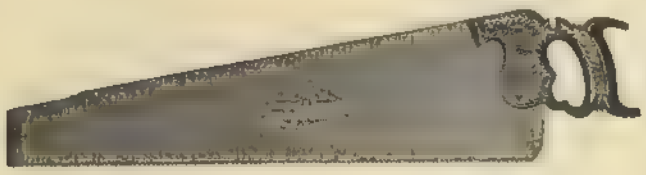
HAND AND RIP.



No. D100S—26 in., DISSTON'S, Ship pattern, *hand*, spring steel, patent ground and tempered blade, etched, skew back, carved apple handle, polished 5 improved screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 25 lbs.....per dozen $25.00

No. D100S—26 in., DISSTON'S, Ship pattern, *rip*, 5, 5½ and 6 points, otherwise same as above, w't per doz. 25 lbs.....per dozen 25 00

ONE-THIRD DOZEN IN A BOX.



No. 12—26 in., DISSTON'S, *hand*, extra refined London spring steel, selected and highly polished blade, handle carved and polished, 4 raised brass screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 26 lbs.....per dozen $30 00

No. 12—28 in., DISSTON'S, *hand*, 6, 7 and 8 points, otherwise same as above, w't per doz. 30 lbs.....per dozen 33 00

No. 12—26 in., DISSTON'S, *rip*, 5, 5½ and 6 points, otherwise same as above, w't per doz. 25 lbs.....per dozen 29 00

No. 12—28 in., DISSTON'S, *rip*, extra refined London spring steel, selected and highly polished blade, handle carved and polished, 4 raised screws, 4, 4½, 5, 5½ and 6 points, w't per doz. 31 lbs., per dozen..... 33 00

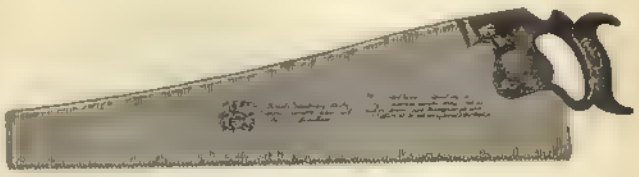
ONE-THIRD DOZEN IN A BOX.

HAND AND RIP.

No. 112—26 in., DISSTON'S, *hand*, extra refined London spring steel, selected and highly polished skew back blade, carved and polished apple handle, 4 improved brass screws, 7, 8, 9, 10, 11 and 12 points, w't per doz. 27 lbs.....per dozen $30 00

No. 112—28 in., DISSTON'S, *rip*, extra refined London spring steel, selected and highly polished skew back blade, carved and polished apple handle, 4 improved brass screws, 4½, 5, 5½ and 6 points, w't per doz. 32 lbs.....per dozen 34.00

ONE-THIRD DOZEN IN A BOX.

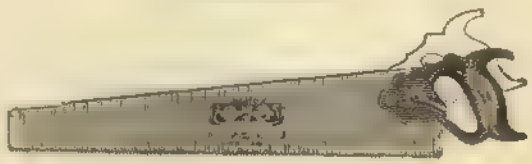


No. 120—26 in., DISSTON'S ACME, *hand*, extra London spring steel, skew back, carved and polished apple handle, 5 screws, runs entirely without set in dry seasoned lumber, 8, 9, 10, 11 and 12 points, w't per doz. 25 lbs.....per dozen $32.00

No. 120—28 in., DISSTON'S ACME, *rip*, extra London spring steel, skew back, carved and polished apple handle, 5 screws, runs entirely without set in dry seasoned lumber, 4½, 5, 5½ and 6 points, w't per doz. 27 lbs.....per dozen 36 00

ONE-THIRD DOZEN IN A BOX.

PLUMBERS'.



"OUR VERY BEST".

[illegible]—20 in., special steel blade tempered to suit purpose of sawing nails and metal without injury to teeth, can be resharpened, adjustable carved handle, nickeled trimmings, w't per doz. 11 lbs.....per dozen $16.00

This saw will prove most successful where nails are numerous and ruinous to all tools not adapted to cut them. In wood it makes a smooth cut. The handle can be adjusted to suit any pitch of blade required for the work and can be instantly fastened.

SAW SCREWS.

No. 1

No. 2.

No. 4.

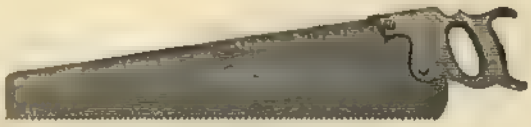
No. 5

No 6.

No. 1—Brass, diameter ⅛ in., w't per doz. ⅛ lb.....per dozen $0.42
No. 2—Brass, diameter ⅜ in., w't per doz. ¼ lb.....“ .48
No. 3—Brass, small eagle, diameter ⅜ in., w't per doz. ½ lb.....“ .70
No. 4—Brass, large eagle, diameter 1 in., w't per doz. ½ lb.....“ .[illegible]
No. 5—Brass, raised, diameter ⅜ in., w't per doz. ¼ lb.....“ .[illegible]
No. 6—Iron, raised, diameter ⅜ in., w't per doz. ⅜ lb.....“ .60

ONE DOZEN IN A BOX.

PANEL SAWS.



No. 75—22 in. ECONOMY, cast steel, etched, beech handle, 2 screws, assorted 8 to 10 points, w't per doz. 16 lbs.....per dozen $5.00
HALF DOZEN IN A BOX.

Sam Sickles', Cast Steel, Beech Handle, Polished Edge, Two Screws.

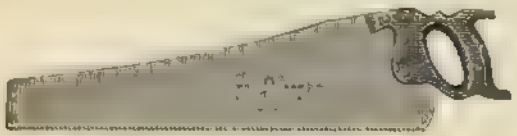
No. 50—Inches.	14	16	18	20	22
W't per doz	9	10	12	14	16 lbs
Per dozen	$4 80	5 40	5 80	6 40	6.90

8, 9, 10 AND 11 POINTS. HALF DOZEN IN A BOX.

Brown's, Grained Blade, Etched, Beech Handle, Polished Edge, Three Screws.

No. 3—Inches	18	20	22
W't per doz	13½	16	18 lbs.
Per dozen	$9 25	10.50	11 50

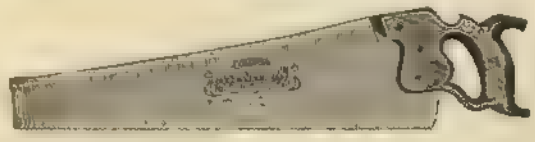
7, 8, 9, 10 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.



H. S. B. & Co's "I Will," Cast Steel Grained Blade, Etched, Skew Back, Polished Beech Handle, Three Screws.

No. 80—Inches	18	20	22
Points	8, 9, 10 and 11	8, 9, 10, 11 and 12	8, 9, 10, 11 and 12
W't per doz.	13	15	18 lbs.
Per dozen	$9.00	9.75	10 50

ONE-THIRD DOZEN IN A BOX.



"Our Very Best", Extra Cast Steel, Patent Ground, Skew Back, Carved and Polished Apple Handle, Four Plated Screws.

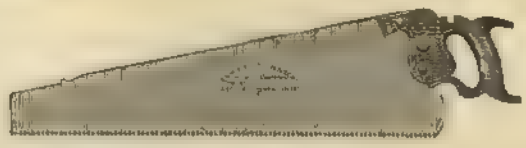
No. 82—Inches.	18	20	22	24
W't per doz	12	15	17	20 lbs.
Per dozen	$17 50	19.00	20 00	22 00

No. 82—"OUR VERY BEST," 24 in., ship pattern, 8, 9, 10 and 11 points, w't per doz. 17 lbs.....per dozen $22 00
18, 20 AND 22 IN. 8, 9, 10, 11, 12 POINTS. 24 IN. 8, 9, 10, 11 POINTS. ONE-THIRD DOZEN IN A BOX.

"U. S. A.," Finest Quality Blued Steel Blade, Patent Ground and Tempered, Polished Skew Back, Carved and Polished Apple Handle, Nickel Plated Raised Screws, Fully Warranted.

No. 100—Inches	18	20	22	24
W't per doz	14	17	20	23 lbs.
Per dozen	$19.50	21.00	22.50	24 00

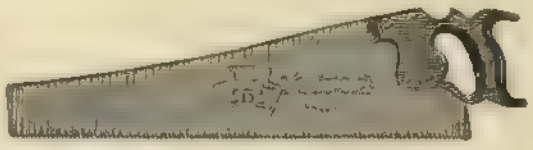
18 TO 22 IN., 8, 9, 10, 11 AND 12 POINTS. 24 IN., 9, 10, 11 AND 12 POINTS.
ONE IN A BOX



Disston's, Grained Blade, Etched, Beech Handle, Polished Edge, Three Screws.

No. 7—Inches.	16	18	20	22	24
W't per doz.	11	13	15	18	21 lbs.
Per dozen	$13.00	14.00	16.00	18.00	19.00

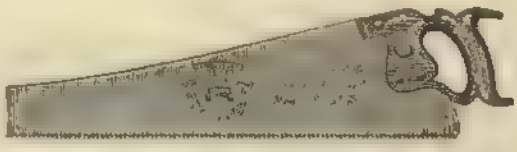
7, 8, 9 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.



Disston's, Cast Steel, Skew Back, Grained Blade and Etched, Polished Apple Handle, Four Improved Screws, Warranted.

No. D6 Inches	18	20	22	
W't per doz	12	15	18	19 lbs.
Per dozen	$16.25	18.00	20.00	21.50

8, 9, 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.

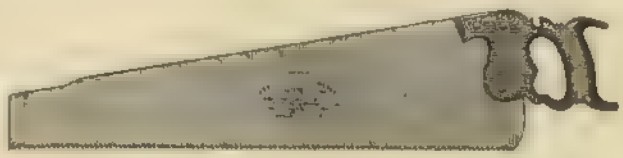


Disston's, Spring Steel, Patent Ground and Tempered, Skew Back, Polished Apple Handle, Four Improved Screws.

No. D100—Inches	18	20	22	24
W't per doz	13	16	19	21 lbs.
Per dozen	$18.25	20.00	22.00	23.50

9, 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.

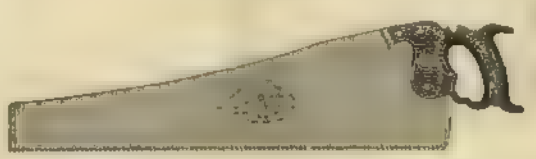
No. D100S—22 in., ship 10, 11 and 12 points, w't per doz. 16½ lbs., per dozen..... $22 00
No. D100S—24 in., ship, 10, 11 and 12 points, w't per doz. 19 lbs., per dozen..... 23 50
ONE-THIRD DOZEN IN A BOX.



Disston's, Extra London Spring Steel Blade, Selected and Highly Polished Apple Handle, Carved, Four Improved Screws.

No. 12—Inches	18	20	22	24
W't per doz	13	16	19	21 lbs.
Per dozen	$20.75	23.00	25.00	27.00

8, 9, 10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.



Disston's, Extra Refined London Spring Steel, Highly Polished Skew Back Blade, Selected and Polished Apple Handle, Carved.

No. 112—Inches	18	20	22	24
W't per doz.	13	16	19	21 lbs.
Per dozen	$21.75	24.00	26 00	28.00

10, 11 AND 12 POINTS. ONE-THIRD DOZEN IN A BOX.

WOOD PLANES.

BARTLETT'S BENCH.

No. 3. No. 5.

Polished Lignumvitæ Start.

No. 3—8 in., smooth, 2 to 2¼ in. double iron, w't 2 lbs., each, - - - - - - - - - $0.90

No. 5—10½ in., handled, smooth, 2 to 2¼ in. double iron, w't 2¼ lbs., - - - - - - each 1.75

THIRTY-SIX IN A CASE

No. 10—16 in., jack, 2 to 2¼ in. single iron, polished lignumvitæ start, w't 3½ lbs., - - - - each $0.85

No. 13—16 in., jack, 2 to 2¼ in. double iron, polished lignumvitæ start, w't 3½ lbs., - - - each 1.00

THIRTY-SIX IN A CASE

Double Iron, Polished Lignumvitæ Start.

No. 19—22 in., fore, 2⅜ to 2½ in., w't 5¼ lbs., - each $1.70

No. 25—26 in., jointer, 2½ to 2⅝ in., w't 7½ lbs., - " 1.80

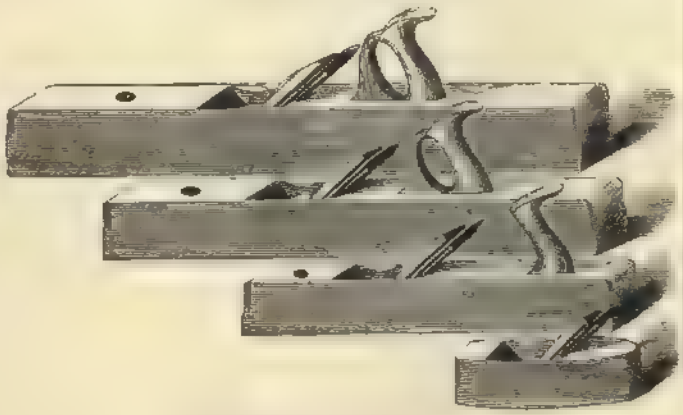
No. 25—28 in., jointer, 2½ to 2⅝ in., w't 8½ lbs., - " 1.90

No. 25—30 in., jointer, 2½ to 2⅝ in., w't 9½ lbs., - " 2.15

TWENTY IN A CASE

All Bartlett planes are fitted with superior irons, manufactured from best cast steel and fully warranted

OGONTZ BENCH.



Polished Ebony Start.

No. 6— 8 in., smooth, 2 to 2¼ in. double iron, w't 2 lbs., each, - - - - - - - - - $0.90

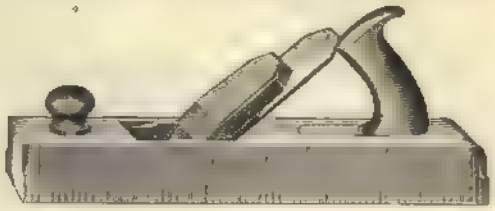
No. 12—16 in., jack, 2 to 2¼ in. double iron, w't 3¼ lbs., each, - - - - - - - - - 1.00

No. 20—22 in., fore, 2⅜ to 2½ in. double iron, w't 6 lbs., each, - - - - - - - - - 1.70

No. 30—26 in., jointer, 2½ to 2⅝ in. double iron, w't 7½ lbs., each, - - - - - - - - - 1.80

NOS. 6 AND 12, THIRTY-SIX. NO. 20, TWENTY-FOUR; NO. 30, TWENTY IN A CASE.

BARTLETT'S SPECIAL BENCH.



No. 1900.

Double Iron, Polished Bit, Sharpened, with Knob.

No. 300— 8 in., smooth, 2 to 2¼ in., w't 2 lbs., each $1.50

No. 1300—15 in., jack, 2 to 2¼ in., w't 3½ lbs., " 1.60

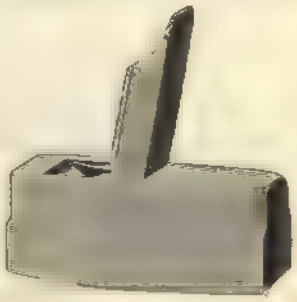
No. 1900—20 in., fore, 2⅜ to 2½ in., w't 4½ lbs., " 1.70

These planes are handsomely varnished. They are first class in every respect and are fully warranted

BARTLETT'S MITER.

No. 38½—1¾ in., smooth shape, single iron, w't 1¾ lbs., each, - - - - - - - - - $0.75

BARTLETT'S TOOTH.



No. 36—2⅜ in. cast steel iron, w't 1¾ lbs., - each $1.00

ONE IN A PACKAGE

BARTLETT'S DADO.

No. 62—Screw stop, sizes ¼, ⅜, ½, ⅝, ¾, ⅞ and 1 in., w't 1 lb., - - - - - each $1.50

Specify size in ordering

ONE IN A PACKAGE

GERMAN SCHRUP PLANES.

No. 500—10 in., 1¾ in. single iron, with horn, w't 1¾ lbs., each, - - - - - - - - $1.25

This plane is imported from Germany, where it is extensively used. It has a round nose iron, and is especially useful for rough planing.

BARTLETT'S FANCY WOOD PLANES.

FILLETSTER.

No. 68

With Cutter.

No. 66—W't 2¾ lbs., - - - - - each $1.25
No. 67—With brass side stop, w't 2½ lbs., - - - " 1.40
No. 68—With brass side stop, boxed, w't 2½ lbs., - " 1.85
No. 69—With brass screw stop, boxed, w't 2¾ lbs., - " 2.50

ONE IN A PACKAGE.

STEP NOSING.

No. 113 2 irons, sizes ⅞, 1, 1⅛ and 1¼ in., w't 1¼ lbs., each, - - - - - - - - - $1.10
No. 113—2 irons, sizes 1⅜ and 1½ in., w't 1½ lbs., - each 1.20
No. 113—2 irons, sizes 1¾ and 2 in., w't 1¾ lbs., - " 1.50

Specify size in ordering
ONE IN A PACKAGE.

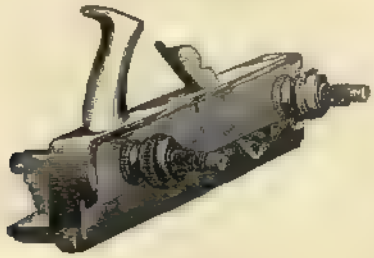
BOARD MATCH.

One Pair No. 99.

No. 99—Sizes ½, ⅝, ¾, ⅞ and 1 in., w't 2¼ lbs., per pair $1.50

Specify size in ordering.
ONE PAIR IN A PACKAGE.

PLANK MATCH.



No. 106—Screw arms, to work grooves, w't 3½ lbs., per pair, - - - - - - - - $3.75

ONE PAIR IN A PACKAGE.

SKEW RABBET.

No. 146—Sizes ½, ⅝, ¾, ⅞ and 1 in., w't 14 oz., - each $0.60
No. 146—1¼ in., w't 1¼ lbs., - - - - " .65
No. 146—1½ in., w't 1½ lbs., - - - - " .70
No. 146—1¾ in., w't 1¾ lbs., - - - - " .80
No. 146—2 in., w't 1¾ lbs., - - - - " .90

Specify size in ordering.
ONE PAIR IN A PACKAGE.

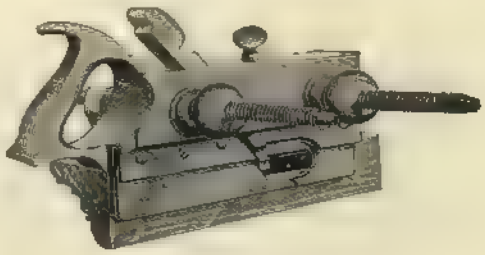
JACK RABBET.

No. 149. Side Handle

No. 149—Center handle, with 2 cutters, sizes 1¼, 1½, 1¾ and 2 in., w't 2¾ lbs., - - - - each $1.70
No. 149—Side handle, with 2 cutters, sizes 1¼, 1½, 1¾ and 2 in., w't 2¾ lbs., - - - - each 1.90

Specify size in ordering
ONE PAIR IN A PACKAGE.

PANEL PLOWS.



No. 117—Beech, 8 irons, screw stop, w't 5½ lbs., - each $ 5.50
No. 119—Beech, 8 irons, screw stop, with handle, w't 5½ lbs., each. - - - - - - - - - 6.50
No. 120—Beech, 8 irons, screw stop, with handle, boxed fence, w't 5½ lbs., - - - - - each 6.85
No. 123—Beech, 8 irons, boxwood arms, with handle, w't 5½ lbs., - - - - - - each 7.75
No. 125—Applewood, 8 irons, screw stop, with handle, boxed fence, w't 5½ lbs., - - - - - each 7.75
No. 132—Box or rosewood, 8 irons, with handle, w't 6½ lbs., each, - - - - - - - - 10.00

ONE IN A BOX

BARTLETT'S FANCY WOOD PLANES.

HOLLOWS AND ROUNDS.

Hollow. Round.

Nos.	1	2	3	4	5	6
Inches,	¼	⅜	½	⅝	¾	⅞
W't per pr.,	1	1¼	1½	1¾	1¾	1⅞ lbs.
Per pair,	$1.00	1.00	1.00	1.00	1.00	1.00

Nos.	7	8	9	10	11	12
Inches,	1	1⅛	1¼	1⅜	1½	1⅝
W't per pr.,	2	2⅛	2¼	2½	2¾	3 lbs.
Per pair	$1.15	1.15	1.15	1.35	1.35	1.35

No. 90—Sets, 9 pairs, consisting of 1 pair each Nos. 1 to 9, inclusive, w't 15 lbs., - - - - - per set $9.45

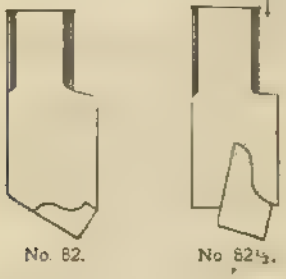
ONE PAIR IN A PACKAGE

ROMAN OGEE.

No. 76—Size ½ in., w't 1 lb., - - - - each $0.75
No. 76—Sizes ⅝, ¾, ⅞ and 1 in., w't 1¼ lbs., - " .85
No. 76—Size 1¼ in., w't 1½ lbs., - - - " 1.00
No. 76—Size 1½ in., w't 2 lbs., - - - " 1.15

Specify size in ordering.
ONE IN A PACKAGE.

ROMAN REVERSE OGEE.



No. 82. No. 82½.

No. 82 —Sizes ½ and ⅝ in., w't 1 lb., - - each $0.75
No. 82 —Sizes ¾, ⅞ and 1 in., w't 1⅜ lbs., - " .85
No. 82 —Size 1¼ in., w't 1¼ lbs., - - - " 1.00
No. 82 —Size 1½ in., w't 1¾ lbs., - - - " 1.15
No. 82½—With fence, ⅞ in., w't 1 lb., - - " .90

Specify size in ordering.
ONE IN A PACKAGE.

BEAD.

No. 47. No. 51

Side, Single Boxed.

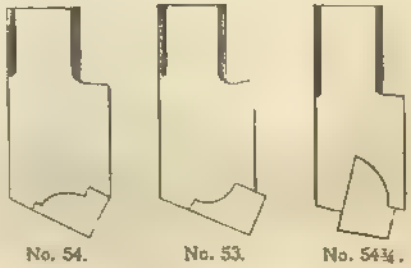
No. 47—Sizes ⅛, ⅜₁₆, ¼, ⅝₁₆, ⅜ and ½ in., w't 12 oz., each, - - - - - - - - $0.50
No. 47—Sizes ⅝ and ¾ in., w't 1 lb., - - each .55
No. 47—Sizes ⅞ and 1 in., w't 1¼ lbs., - - " .70

Center, Double Boxed.

No. 51—Sizes ⅛, ⅜₁₆, ¼, ⅝₁₆, ⅜ and ½ in., w't 12 oz., each, - - - - - - - - $0 60
No. 51—Sizes ⅝ and ¾ in., w't 1 lb., - - each .65
No. 51—Size ⅞ in., w't 1¼ lbs., - - - " .80

Specify size in ordering.
ONE IN A PACKAGE.

MOULDING.



No. 54. No. 53. No. 54¾.

Scotia or Quarter Round.

No. 54—Size ⅝ in., w't 1⅜ lbs., - - - each $0.50
No. 54—Sizes ¾, ⅞ and 1 in., w't 1¼ lbs., - " .65

Cove.

No. 53—Sizes ⅝ and ¾ in., w't 1 lb., - each $0.50
No. 53—Sizes ⅞ and 1 in., w't 1¼ lbs., - - " .65

Casing.

No. 54¾ With fence, ⅞ in., to work on edge, w't 1 lb., each $0.90

Specify size in ordering.
ONE IN A PACKAGE.

SASH.

No. 167. No. 168. No. 169.

Screw Arms, Self Regulating.

No. 167—Gothic, boxed, w't 2 lbs., - - - each $2 00
No. 168—Ovolo, boxed, dovetailed, w't 2 lbs., - " 2 25
No. 169—Ogee, boxed, dovetailed, w't 2 lbs., - " 2.25

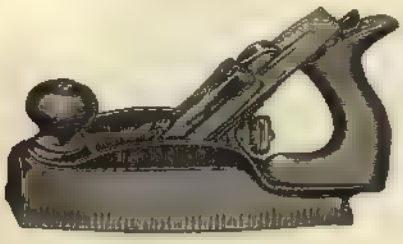
ONE IN A PACKAGE

OHIO ADJUSTABLE BENCH PLANES.

WOOD.

No. 021—7 in., smooth, 1¾ in. cutter, w't 1½ lbs., - each $2 00
No. 022—8 in., smooth, 1¾ in. cutter, w't 2½ lbs., - " 2 00
No. 023—9 in., smooth, 1¾ in. cutter w't 2¾ lbs., " 2 00
No. 024 8 in., smooth, 2 in. cutter, w't 3 lbs., - " 2 00

ONE IN A BOX



No. 035— 9 in., handled smooth, 2 in. cutter, w't 3¼ lbs., each, - - - - - - - - $2.50
No. 036—10 in., handled smooth, 2⅜ in. cutter, w't 4 lbs., each, - - - - - - - - 2.75

ONE IN A BOX

No. 026—15 in., jack, 2 in. cutter, w't 5 lbs., - each $2.25
No. 027—15 in., jack, 2⅜ in. cutter, w't 5¼ lbs., - " 2.50

ONE IN A BOX

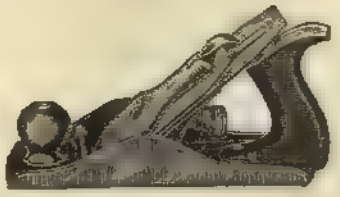
No. 028—18 in., fore, 2⅜ in. cutter, w't 6½ lbs., - each $2.75
No. 029—20 in., fore, 2⅜ in. cutter, w't 7 lbs., - " 2.75

ONE IN A BOX

No. 030—22 in., jointer, 2⅜ in. cutter, w't 7¼ lbs., - each $3 00
No. 031—24 in., jointer, 2⅜ in. cutter, w't 7½ lbs., - " 3.00
No. 032—26 in., jointer, 2⅜ in. cutter, w't 8½ lbs., - " 3 25
No. 033—28 in., jointer, 2⅜ in. cutter w't 9 lbs., - " 3.25
No. 034—30 in., jointer, 2⅜ in. cutter, w't 9½ lbs., - " 3.50

ONE IN A BOX.

IRON.



No. 03 — 8 in., smooth, 1¾ in. cutter, w't 3¼ lbs., each $3.00
No. 04 — 9 in., smooth, 2 in. cutter, w't 3¾ lbs., " 3.25
No. 04½—10 in., smooth, 2⅜ in. cutter, adjustable front, w't 5 lbs., - - - - - - each 3.75

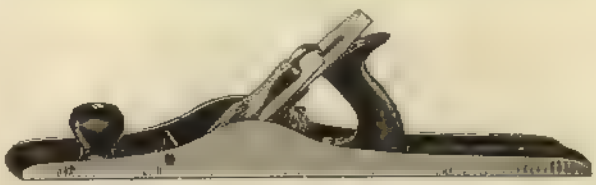
ONE IN A BOX.

No. 05 —14 in., jack, 2 in. cutter, w't 4¾ lbs., - each $3 75
No. 05½—15 in., jack, 2¼ in. cutter, w't 5¾ lbs., - " 4.25

ONE IN A BOX.

No. 06—18 in., fore, 2⅜ in. cutter, w't 6½ lbs., - each $4.75

ONE IN A BOX



No. 07 22 in., jointer, 2⅜ in. cutter, w't 7¾ lbs., each $5 50
No. 08 24 in. jointer 2⅜ in. cutter, w't 9¼ lbs., - " 6.50

ONE IN A BOX

CORRUGATED BOTTOM IRON.

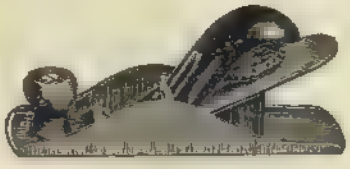
No. 03C — 8 in., smooth, 1¾ in. cutter, w't 3¼ lbs., each $3.00
No. 04C — 9 in., smooth, 2 in. cutter, w't 3¾ lbs., " 3.25
No. 04½C—10 in., smooth, 2⅜ in. cutter, adjustable front, w't 5 lbs., - - - - - - each 3.75
No. 05C —14 in., jack, 2 in. cutter, w't 4¾ lbs., " 3.75
No. 05½C—15 in., jack, 2¼ in. cutter, w't 5¾ lbs., " 4.25
No. 06C —18 in. fore, 2⅜ in. cutter, w't 6½ lbs., " 4.75
No. 07C 22 in., jointer, 2⅜ in. cutter, w't 7¾ lbs., " 5.50
No. 08C 24 in., jointer, 2⅜ in. cutter, w't 9¼ lbs., " 6 50

ONE IN A BOX

OHIO BLOCK PLANES.

No. 0101—3½ in., 1 in cutter, w't 4 oz., - - each $0.25
ONE IN A BOX

No. 0102.

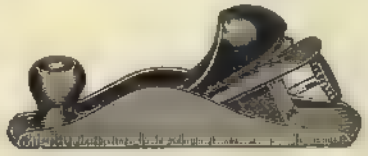


No. 0110.

No. 0102—5½ in., 1¼ in. cutter, w't 14 oz., - each $0.55
No. 0110—7½ in., 1¾ in. cutter, w't 1¼ lbs., - " .70
ONE IN A BOX.

No. 0103—5½ in., adjustable, 1¾ in. cutter, w't 14 oz., each, - - - - - - - - $0.70
ONE IN A BOX.

No. 0130—8 in., double-ender, 1¾ in. cutter, w't 1¾ lbs., each, - - - - - - - - - $1.00
With two slots and two cutter seats. By reversing position of the cutter and clamping wedge, can be used to plane close up into corners, and other difficult places.
ONE IN A BOX.



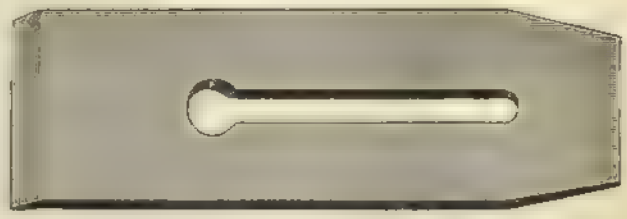
No. 0220—7½ in., adjustable, 1¾ in. cutter, w't 1½ lbs., each, - - - - - - - - - $0.9[illegible]
ONE IN A BOX.

With Throat and Lateral Adjustment.
No. 09½—6 in., 1¾ in. cutter, w't 1¼ lbs., - each $1.60
No. 015 —7 in., 1¾ in. cutter, w't 1½ lbs., - " 1.70
ONE IN A BOX.

With Throat and Lateral Adjustment.
No. 09¾—6 in., rosewood handle, 1¾ in. cutter, w't 1½ lbs., each, - - - - - - - - - $1.85
ONE IN A BOX.

PLANE IRONS.

OHIO.

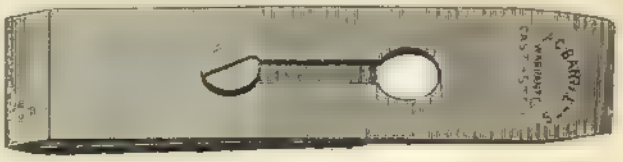


Single, for Ohio Iron Bench Planes.

No. 40—Width,	1¾	2	2⅛	2⅜	2⅝ in.
Each, - -	$0.30	.33	.35	.40	.45

ONE DOZEN IN A BOX.

BARTLETT'S.



No. 85.

Single, for Wood Bench Planes.

No. 80—Width, - -	1¾	1⅞	2 in.
W't per doz., - -	5	5¾	6½ lbs.
Per dozen, - - -	$2.75	2.95	3.15
No. 80—Width, - -	**2⅛**	**2⅜**	**2⅝ in.**
W't per doz., - -	6⅞	7½	8 lbs.
Per dozen, - - -	$3.35	3.70	4.10
No. 80—Width, - -	**2½**	**2⅝**	**2¾ in.**
W't per doz., - -	8⅝	9¾	10 lbs.
Per dozen, - - -	$4.50	4.90	5.50

ONE DOZEN IN A BOX

Double, for Wood Bench Planes.

No. 85—Width, -	1¾	1⅞	2	2⅛	2⅜ in.
W't per doz., -	8½	9½	10½	11	12 lbs
Per dozen, - -	$6.00	6.25	6.45	6.65	7.00
No. 85—Width, - -		**2⅜**	**2½**	**2⅝**	**2¾ in.**
W't per doz., - -		12½	13	15	15½ lbs
Per dozen, - - -		$7.40	8.20	9.00	10.15

HALF DOZEN IN A BOX

PLOW BITS.

No. 8—Sets of 8, 3/16 to 5/8 in., for wood plows, - per set $1.50

TOOTH.

For No. 36 Wood Tooth Planes.

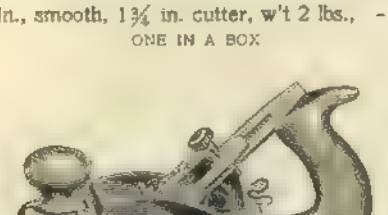
Width, - - -	2	2⅛	2¼ in.
W't per doz., - -	6	7½	9 lbs.
Per dozen, - -	$3.00	3.50	3.75

HALF DOZEN IN A BOX.

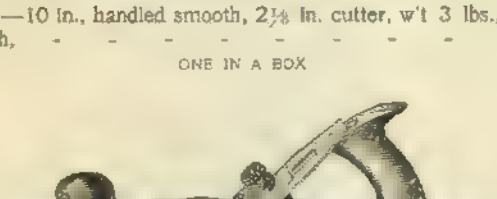
STANLEY'S ADJUSTABLE BENCH PLANES.

WOOD.

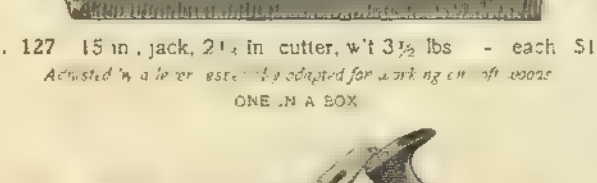
No. 122—8 in., smooth, 1¾ in. cutter, w't 2 lbs., - each $1.00
ONE IN A BOX



No. 135—10 in., handled smooth, 2⅛ in. cutter, w't 3 lbs., each, - - - - - - - - - $1.35
ONE IN A BOX

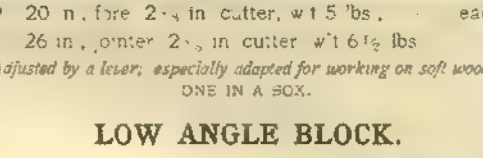


No. 127 15 in., jack, 2⅛ in. cutter, w't 3½ lbs - each $1.35
Adjusted by a lever, especially adapted for working on soft woods.
ONE IN A BOX



No. 129 20 in., fore 2⅜ in. cutter, w't 5 lbs., - each $1.50
No. 132 26 in., jointer 2⅜ in. cutter w't 6½ lbs 1.70
Adjusted by a lever, especially adapted for working on soft woods.
ONE IN A BOX.

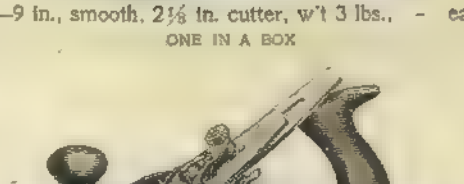
LOW ANGLE BLOCK.



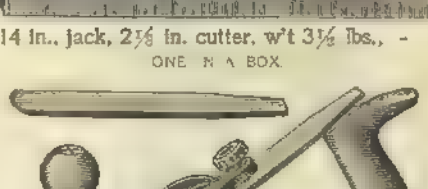
No. 62B—14 in., low angle, 2 in. cutter, w't 4 lbs., - each $2.50
The construction of this plane is such that it is especially adapted for use in cutting across the grain on heavy work, where more power is required than can be obtained by use of the ordinary block plane. The plane is fitted with an adjustable throat, which enables the user to work equally well on hard or soft wood.
ONE IN A BOX.

STEEL.

No. 104—9 in., smooth, 2⅛ in. cutter, w't 3 lbs., - each $1.85
ONE IN A BOX

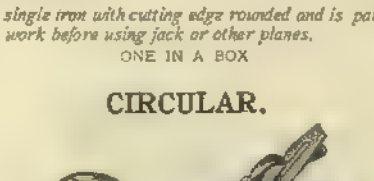


No. 105—14 in., jack, 2⅛ in. cutter, w't 3½ lbs., - each $2.35
ONE IN A BOX

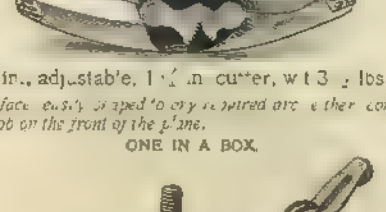


No. 40 — 9½ in., improved scrub, iron stock, 1¼ in. cutter, w't 2 lbs., - - - - - each $1.00
No. 40½ —10½ in., improved scrub, iron stock, 1⅜ in. cutter, w't 2½ lbs - - - each 1.35
This tool has a single iron with cutting edge rounded and is particularly adapted for roughing down work before using jack or other planes.
ONE IN A BOX

CIRCULAR.



No. 113 10 in., adjustable, 1½ in. cutter, w't 3½ lbs., each $2.75
Flexible steel face easily shaped to any required arc either concave or convex by turning the knob on the front of the plane.
ONE IN A BOX.



No. 20½—10 in., VICTOR, adjustable, 1¾ in. cutter, w't 4 lbs., each, - - - - - - - - $3.15
No. 20 — Nickel plated, otherwise same as No. 20½, each 3.75
All parts specially designed with the object of eliminating any lost motion due to wear. The ends of the flexible face being fixed and the force applied at the center, great accuracy of adjustment is possible and the face is most firmly held in position
ONE IN A BOX.

Orders for plane irons should designate the numbers of the planes for which they are wanted.

STANLEY'S BED ROCK IRON PLANES.

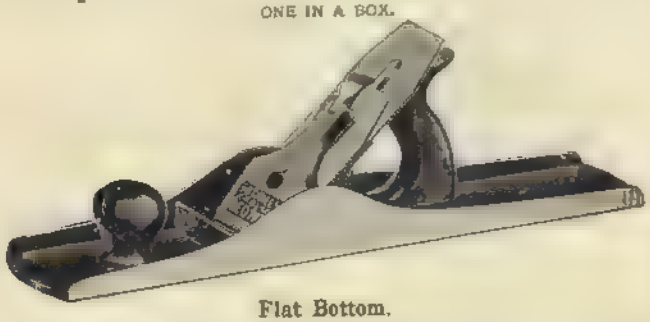
Nos. 602 to 604½.

Nos. 6 and 605½.

Flat Bottom.

No. 602	— 7 in., smooth, 1⅝	in. cutter, w't 2¼	lbs.,	each $2.15
No. 603	— 8 in., smooth, 1¾	in. cutter, w't 3	lbs.,	" 2.30
No. 604	— 9 in., smooth, 2	in. cutter, w't 3½	lbs.,	" 2.50
No. 604½	—10 in., smooth, 2⅜	in. cutter, w't 4½	lbs.,	" 2.90
No. 605	—14 in., jack, 2	in. cutter, w't 4½	lbs.,	" 2.90
No. 605½	—15 in., jack, 2¼	in. cutter, w't 6	lbs.,	" 3.25

ONE IN A BOX.



Flat Bottom.

No. 606	—18 in., fore, 2⅜	in. cutter, w't 7	lbs., -	each $3.50
No. 607	—22 in., jointer, 2⅜	in. cutter, w't 8	lbs., -	" 4.20
No. 608	—24 in., jointer, 2⅜	in. cutter, w't 9½	lbs., -	" 5.00

ONE IN A BOX.

These planes are called "one-piece" [illegible] construction and for the reason that the entire surfaces of the [illegible] are ground, and the plane bottom on the other [illegible] from the plane iron to the bottom of the plane is as one solid piece. [illegible] made and ground. It is a well known fact that more [illegible] are obtained by [illegible] perfect [illegible] a good [illegible] planing [illegible] in many parts. [illegible] can be made accurately a [illegible]

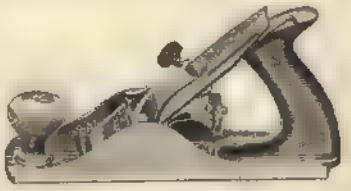
Although practically solid, this plane is easily adjustable at the mouth. The combination of one-piece solidity and quick adjustability is unique in planes and will at once be appreciated by every intelligent workman.

Corrugated Bottom.

No. 602C	— 7 in., smooth, 1⅝	in. cutter, w't 2¼	lbs.,	each $2.15
No. 603C	— 8 in., smooth, 1¾	in. cutter, w't 3	lbs.,	" 2.30
No. 604C	— 9 in., smooth, 2	in. cutter, w't 3½	lbs.,	" 2.50
No. 604½C	—10 in., smooth, 2⅜	in. cutter, w't 4½	lbs.,	" 2.90
No. 605C	—14 in., jack, 2	in. cutter, w't 4½	lbs.,	" 2.90
No. 605½C	—15 in., jack, 2¼	in. cutter, w't 6	lbs.,	" 3.25
No. 606C	—18 in., fore, 2⅜	in. cutter, w't 7	lbs.,	" 3.50
No. 607C	—22 in., jointer, 2⅜	in. cutter, w't 8	lbs.,	" 4.20
No. 608C	—24 in., jointer, 2⅜	in. cutter, w't 9½	lbs.,	" 5.00

ONE IN A BOX.

SIEGLEY ADJUSTABLE IRON PLANES.



Corrugated Bottom.

No. 4	— 9 in., smooth, 2	in. cutter, w't 2¼	lbs.,	each $2.75
No. 4½	—10 in., smooth, 2¼	in. cutter, w't 3⅛	lbs.,	" 3.15

ONE IN A BOX.

Corrugated Bottom.

No. 5	—14 in., jack, 2	in. cutter, w't 3½	lbs., -	each $3.15
No. 5½	—15 in., jack, 2¼	in. cutter, w't 4⅛	lbs., -	" 3.55

ONE IN A BOX

Corrugated Bottom.

No. 6	—18 in., fore, 2¼	in. cutter, w't 4¾	lbs., -	each $4.00
No. 7	—22 in., jointer, 2⅜	in. cutter, w't 5½	lbs., -	" 4.55
No. 8	—24 in., jointer, 2½	in. cutter, w't 6½	lbs., -	" 5.45

ONE IN A BOX.

ADJUSTABLE COMBINATION

No. 2—9 in., Siegley nickel-plated combination carpenters' plow and [illegible] and center beading plane, 9 plow cutters, 3/16, ¼, 5/16, ⅜, 7/16, ½, 5/8, ¾ and ⅞ in., 7 beading tools ⅜, 7/16, ¼, 5/16, ⅜, 7/16 and ½ in., match cutter and sash tool, weight, 7½ lbs., - each $8.00

ONE IN A WOOD BOX.

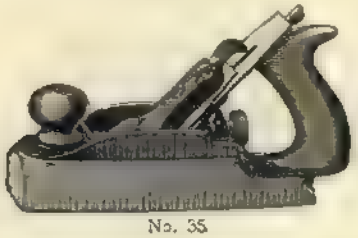
SIEGLEY SINGLE PLANE IRONS.

Width,	2	2⅛	2⅛	2¼ in.
Each, - -	$0.30	.35	.40	.45

BAILEY'S ADJUSTABLE BENCH PLANES.

WOOD.

No. 21—7 in. smooth 1¾ in. cutter, w't 2 lbs., - each $1.35
No. 22—8 in. smooth 1¾ in. cutter, w't 2¼ lbs., - " 1.35
No. 23—9 in. smooth 1¾ in. cutter, w't 2½ lbs., - " 1.35
No. 24—8 in. smooth 2 in. cutter, w't 2½ lbs., - " 1.35
No. 25—9½ in. block, 1¾ in. cutter, w't 3½ lbs., - " 1.35
ONE IN A BOX.



No. 35.

No. 35— 9 in. handled smooth, 2 in. cutter, w't 3 lbs., each, $1.70
No. 36—10 in. handled smooth, 2⅜ in. cutter, w't 3¾ lbs., each, - - - - - - - 1.85
No. 37—13 in. jenny smooth, 2⅝ in. cutter, w't 5 lbs., each 2.00
ONE IN A BOX

No. 26 —15 in. jack, 2 in. cutter, w't 3¾ lbs., - each $1.50
No. 27 —15 in. jack, 2⅛ in. cutter, w't 4 lbs., - " 1.70
No. 27½—15 in. jack, 2¼ in. cutter, w't 4¼ lbs., - " 1.70
ONE IN A BOX.

No. 28—18 in. fore, 2⅜ in. cutter, w't 5 lbs., - each $1.85
No. 29—20 in. fore, 2⅜ in. cutter, w't 5¾ lbs., - " 1.85
ONE IN A BOX.

No. 30—22 in. jointer, 2⅜ in. cutter, w't 6 lbs., - each $2.00
No. 31—24 in. jointer, 2⅜ in. cutter, w't 6½ lbs., - " 2.00
No. 32—26 in. jointer, 2⅝ in. cutter, w't 7 lbs., - " 2.20
No. 33—28 in. jointer, 2⅝ in. cutter, w't 7½ lbs., - " 2.20
No. 34—30 in. jointer, 2⅝ in. cutter, w't 8½ lbs., - " 2.35
ONE IN A BOX.

IRON.

No. 1 - 5½ in. smooth, 1¾ in. cutter, w't 1 lb., - each $1.50
No. 2 - 7 in. smooth, 1⅝ in. cutter, w't 2 lbs., - " 1.85
No. 3 - 8 in. smooth, 1¾ in. cutter, w't 3 lbs., - " 2.00
No. 4 — 9 in. smooth, 2 in. cutter, w't 3½ lbs., - " 2.20
No. 4½—10 in. smooth, 2⅜ in. cutter, w't 5 lbs., - " 2.50
ONE IN A BOX

No. 5 —14 in. jack, 2 in. cutter, w't 4½ lbs., - each $2.50
No. 5½—15 in. jack, 2¼ in. cutter, w't 6 lbs., - " 2.85
No. 6 —18 in. fore, 2⅜ in. cutter, w't 7 lbs., - " 3.20
ONE IN A BOX

No. 7—22 in. jointer, 2⅜ in. cutter, w't 8 lbs., - each $3.65
No. 8—24 in. jointer, 2⅝ in. cutter, w't 9½ lbs., - " 4.35
ONE IN A BOX

No. 10½

No. 10½ — 9 in. carriage makers' rabbet, 2⅛ in. cutter, w't 3½ lbs., - - - - - - each $2.50
No. 10 —13 in. carriage makers' rabbet, 2⅛ in. cutter, w't 4½ lbs., - - - - - - each 3.00
ONE IN A BOX.

CORRUGATED BOTTOM, IRON.

No. 3C — 8 in. smooth, 1¾ in. cutter, w't 3 lbs., - each $2.00
No. 4C — 9 in. smooth, 2 in. cutter, w't 3½ lbs., - " 2.20
No. 4½C—10 in. smooth, 2⅜ in. cutter, w't 5 lbs., - " 2.50
No. 5C —14 in. jack, 2 in. cutter, w't 4½ lbs., - " 2.50
No. 5½C—15 in. jack, 2¼ in. cutter, w't 6 lbs., - " 2.85
No. 6C —18 in. fore, 2⅜ in. cutter, w't 7 lbs., - " 3.20
No. 7C —22 in. jointer, 2⅜ in. cutter, w't 8 lbs., - " 3.65
No. 8C —24 in. jointer, 2⅝ in. cutter, w't 9½ lbs., - " 4.35
No. 10½C— 9 in. carriage makers' rabbet, 2⅛ in. cutter, w't 3½ lbs., - - - - - each 2.50
No. 10C —13 in. carriage makers' rabbet, 2¼ in. cutter, w't 4½ lbs., - - - - - - each 3.00
ONE IN A BOX.

CALLS AND DECOYS.

CALLS.

No. 773—Snipe, horn .....per dozen $3.50
ONE DOZEN IN A BOX.

No. 760—Duck, cocobolo wood, horn tip per dozen $3 75
ONE DOZEN IN A BOX.

No. 768—ALLEN'S, duck, wood shell, nickel plated end.....per dozen $6 00
These calls are as near perfection as can be attained, each one being tuned by Mr. F. A. Allen who is one of the oldest and most expert duck hunters in the country.
HALF DOZEN IN BOX.

No. 769—Duck, fitted with hand-made rubber reed, rubber and cork inner parts, outside part of hard maple wood and spun brass.....per dozen $12 00
This call is non-corrosive and is easily adjusted to suit the different voices of mallard, pintail, widgeon and other ducks without affecting the reed.
ONE DOZEN IN A BOX.

No. 770—FULLER'S, goose and crane, nickel plated extension tube, per dozen $13 50
ONE IN A BOX.

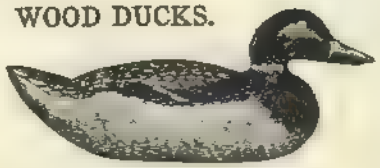
No. 750—Crow, nickel-plated brass extension tube, cedar mouth-piece, per dozen $12 00
ONE DOZEN IN A BOX.

KANKAKEE WOOD DUCKS.

Mallard, Canvas Back, Red Head, Blue Bill, Pintail and Blue Winged Teal.

No. 1—Glass eyes, best grade, assorted per dozen. $5 25
No. 2—Tack eyes, second grade, assorted per dozen 4 25
No. 3—Painted eyes third grade, assorted.....per dozen 3.60
These decoys are made of the best seasoned white cedar, flat bottomed, will float evenly on the water at all times, are well balanced and nicely painted. Assorted one-third female and two-thirds male.
ONE DOZEN IN A CRATE. AVERAGE WEIGHT 33 LBS. PER DOZEN

WOOD DUCKS.



No. A1—Extra quality glass eyes, mallards only, assorted, two-thirds male and one-third female, w't per doz 27 lbs .....per dozen $9 00
ONE DOZEN IN A CRATE

FOLDING DUCKS.

No. 7—ACME, wood base, waterproof cloth form nicely painted with anchor, folding wire frame, w't per doz. 14 lbs. per dozen $6 00
ONE DOZEN IN A CASE.

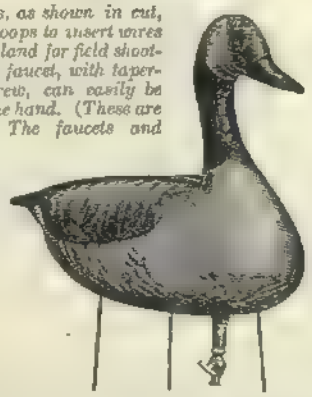
No. 6—ILLINOIS RIVER, profile 3 in group, 2 male and 1 female, painted in natural colors to represent male and female mallards, canvas backs, blue bills, black mallards, whistlers, red heads, teal and widgeons (mallards will always be sent unless otherwise specified), w't per doz 8 lbs. per dozen $4 50
These folding profile decoys are attached to a wooden float in groups of three, two male and one female. The float is in three pieces, joined at one end with a three plate hinge so that when extended a bird floats at each extremity.
Four floats take one dozen of the decoys. One cord and anchor for each group of three decoys.
ONE DOZEN IN A STRONG CARRY BOX

CANVAS COLLAPSIBLE DUCKS.

These decoys are made of the best Sea Island domestic, treated with three coats of waterproof dressing and one coat of paint; are not affected in any way by the heat or cold, and will last indefinitely.

No. 4—Without valve, with anchor and cord, 1 dozen in a hinged box, 16×8×5½ in., with handle, mallard, canvas back, red head, blue bill, widgeon, spritail and teal, assorted half male and half female.....per dozen $7.20
No. 5—With improved valve, otherwise same as No. 4, mallard and spritail only. ..... per dozen 9.00
ONE DOZEN IN A CRATE. WEIGHT 8 LBS. PER DOZEN

CANVAS COLLAPSIBLE GEESE.



Geese decoys, as shown in cut, are made with loops to insert wires to set them on land for field shooting. A brass faucet, with tapering gimlet screw, can easily be inserted with the hand. (These are detachable.) The faucets and wires are articles of convenience only and are charged extra when wanted.

No. 8—Without wires, anchor or faucet per dozen $15 00
Brass Faucets, extra. .....per dozen 2 00
ONE DOZEN IN A BOX. WEIGHT 14 LBS. PER DOZEN

FOLDING GEESE.

Nos. 1 and 8 have the latest improved leg and neck, with 14 in. extension rod to hold in position.

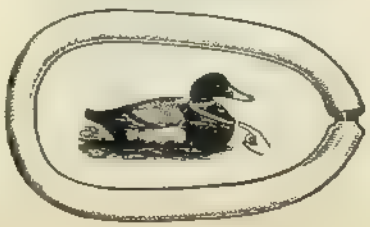
No. 1—Profile without wings, per dozen $8.00
ONE DOZEN IN A BOX, W'T 24 LBS

FOLDING CANADA GEESE.

Geese Decoys open ready for use.

No. 2—ILLINOIS RIVER, Canada geese, profile, 3 in group, colors accurately represented, otherwise same as No. 6 folding ducks, w't per doz. 12 lbs., per dozen . . $8 00

DECOY WEIGHTS.



No. 15—Galvanized iron, 4¾×2¾ in., w't per doz. 6 lbs.....per dozen $1.00

BLASTING SUPPLIES.

AETNA DYNAMITE.

Nitro-Glycerine Powder.

Nos.	4	4X	3	3X
Strength	20	25	27	30%
Per pound	$0.15	.15½	.16	.16½
Nos.	**2C**	**2B**	**2**	**2X**
Strength	33	35	40	45%
Per pound	$0 17	.17½	.18	.18½
Nos.			**2XX**	**1**
Strength			50	60%
Per pound			$0.19½	21

¾, ⅞, 1, 1¼ OR 1½ IN. CARTRIDGES, 25 OR 50 LBS IN A CASE. WE DO NOT BREAK CASES

Ammonia Powder.

No. 2A —40 per cent explosive compound . . . . per pound $0 17½
No. 1A —60 per cent. explosive compound . . . . per pound .20½

¾, ⅞, 1, 1¼ OR 1½ IN. CARTRIDGES, 25 OR 50 LBS. IN A CASE. WE DO NOT BREAK CASES

Powder or dynamite cannot be shipped with other goods.

Dynamite is a combination of nitro-glycerine with other explosive ingredients, and when properly manufactured is much safer than gunpowder. 40% is the grade most used and is best for quarry work, stump blasting, etc. The lower grades, 30% to 30%, are suitable for blasting clay, very soft rock and other material which requires a pushing rather than a shattering effect. 30% and 35% are for moderately hard rock and stumps in light soil; 45% to 60% for very hard rock. 60% and 75% are best for breaking bowlders, submarine blasting and shooting wells. Sold by weight only.

DYNAMITE BLASTING CAPS.

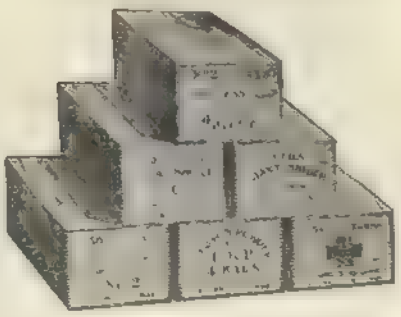
Aetna.

Gold Medal, XXXX, quadruple strength, per thousand $10 00
Silver Medal, XXX triple strength, per thousand. 9.00

Always store and carry your caps separate from the dynamite. Caps cannot be shipped with dynamite.

100 IN A BOX, 1,000 IN A CARTON

DUPONT'S DYNAMITE.



Atlas Powder and Atlas Extra.

Strength	30	33	35	40	60%
Per pound	$0 16½	.17	.17½	.18	.21

Hercules Powder and Hercules Extra.

Strength	30	33	35	40	60%
Per pound	$0.16½	17	17½	.18	21

Giant Powder and Giant Extra.

Strength	30	33	35	40	60%
Per pound	$0.16½	.17	17½	18	21

Red Cross Dynamite, Low Freezing.

Strength	30	33	35	40	60%
Per pound	$0 16½	.17	.17½	.18	.21

The above explosives are especially adapted for blasting stumps breaking bowlders, digging wells, quarrying work, etc

Freezes slowly and not above 30°.

Repauno Gelatin, Hercules Gelatin, Giant Gelatin and Forcite.

Strength	35	40	60	75%
Per pound	$0 17½	.18	.21½	23

These are especially adapted for use in tunnels or other places where the ventilation is not especially good.

Judson Railway Powder, per pound $0 11

Judson railway powder is especially adapted for open excavations, especially in shaly rock Cases containing 50 lbs. net, four bags to the case

All dynamite is packed in cases containing 50 lbs. net, in cartridges ⅜×8 in., 1×8 in. and 1¼×8in Special sizes for special purposes can be had at increased cost for package

Thawing Dynamite.

There are various ways of thawing High Explosives. They are all the same in effect THAW SLOWLY AND GRADUALLY

One of the simplest and best ways is to spread the cartridges on a shelf, or on the floor, in a warm room and leave them over night Burying dynamite in boxes in fresh manure is a safe and fairly effective way to thaw the explosive, provided the manure is fresh.

Never thaw dynamite by putting it near a fire, or in the oven, or against a stove or steam heater. And do not try to thaw by exposing dynamite to live steam, or soaking in hot water.

It is not at all necessary that the cartridge should feel warm.

Be sure they are soft (*all through*) and you will be all right.

POINTS ON BLASTING.

To Prepare a Cartridge for Use.

Cut off a piece of fuse the required length and carefully insert the *freshly-cut end* of the fuse in the *cap*. The fuse should exactly fit the cap. If it is too large, pare it down; and if too small, wrap it with paper till it is the right size. Press the cap down gently [illegible] the charge contained in the cap comes in contact with the loose powder of the fuse end. then with the crimpers tighten the empty end of the cap, so that the fuse cannot be pulled out of the cap. The fuse and cap will then be ready to put in the cartridge.

The principal precaution to be observed in crimping caps on the fuse is, to be careful not to crimp the caps tight enough to cut off the powder train in the fuse, thus preventing the fire from reaching the cap and causing a failure of the blast

If the place where the blasting is being done is wet, the filling of the cap must be protected, as it is quickly spoiled by moisture, and if allowed to become damp might cause the blast to hang fire or miss altogether. This trouble can be very simply prevented by smearing the outside junction of the fuse and cap (i. e., where the cap is crimped to the fuse as well as the hole in the cartridge where the fuse enters) with grease, tallow, or some similar substance to keep out the dampness.

Now, having prepared the cap as just described, it is ready to be put in the cartridge Take a pointed stick of wood about the size of a lead pencil and punch a hole in the side of the cartridge about an inch or two from one end at an angle towards the other end. Insert the cap in this hole and tie the fuse tightly by means of a half hitch to the cartridge

This prevents the tamping rod from coming in contact with the cap, and keeps the cap from pulling out of the cartridge.

Always be careful when manipulating dynamite not to taste it or get it on the hands, for the smallest quantity will nearly always cause a violent headache

Charging the Hole.

Having prepared the cartridge for use in the manner described, insert it in the bore-hole and push it firmly home, being sure it fully fills up the diameter of the hole, for crevices or air spaces greatly lessen the power of an explosive. It is sometimes well in dry ground to slit the side of the paper shell before pressing home

Tamping Rod.

Be sure the tamping is done with a wooden rod *Never use a metal tamping rod or a rod having metal parts.* An old broom handle makes an excellent tamping rod.

Tamping.

After the charge is pressed home as directed, put in two or three inches of fine dirt or sand, and tamp (pack) *lightly*. The tamping material should be packed as firmly on top of the charge as can consistently be done without disarranging the cap and fuse in the cartridge. Then fill up two inches more of the hole with tamping material, packing it in a little more firmly. After five inches of tamping covers the charge, the tamping may be rammed as hard as is possible with hand power, without danger of premature explosion. Hand power is the limit of safe working It is not safe to tamp by a blow any stronger than can be given by hand. Fill the bore-hole up with tamping until even with the surface. The firmer and harder it can be made (without overlooking the above precautions), the better will be the results. If proper tamping of the bore-hole is neglected, the charge is likely to "blow out," or at any rate some of its force will be wasted.

DYNAMITE CANNOT BE SHIPPED WITH OTHER GOODS. CAPS CANNOT BE SHIPPED WITH DYNAMITE OR POWDER. NEITHER CAN BE SENT BY EXPRESS.

ELECTRICAL BLASTING SUPPLIES.

BLASTING MACHINES.

These machines will be found to fully sustain their reputation for reliability. They are well made throughout, work smoothly, are hard to break and easy to repair. The design is extremely simple, so that an ordinary workman can keep them in good order and make slight repairs if necessary. This simplicity of design, together with strong and durable construction, enables us to produce a machine which will stand well the hard usage such things generally receive and come as near taking care of itself as any machine can, at the same time being easy to care for and repair.

No. 1—Capacity 8 to 10 holes, height of case 11 in., w't 18½ lbs.....each $15.00

This machine is used mostly for shooting wells, prospecting and any blasting where but a few charges are to be fired simultaneously.

No. 3—Capacity 20 to 25 holes, height of case 13½ in., w't 22½ lbs... each $25.00

This is the favorite of quarry men and railroad contractors

No. 4—Capacity 30 to 50 holes, height of case 18 in., w't 45½ lbs.....each $50.00

The best size for ordinary quarry work and railroad contractors' use, even if only twenty holes are to be fired at a shot, for the extra current compensates for leaks in the blast line which are sometimes unavoidable.

No. 5—Capacity 50 to 100 holes, height of case 20½ in., w't 68½ lbs... each $75.00

We believe that the No. 5 is as powerful as can be made and still be easily portable and sufficiently easy to drive to enable one man to get the full current out of it.

LEADING WIRE.

No. 16—No. 16 B. & S. gauge copper wire, in coils of 500 ft., w't per coil 8½ lbs., per thousand ft..... $10.00

Enough leading wire is needed with each machine to make two leaders of sufficient length to reach from the blast to a safe distance at which the person who operates the machine should stand. *Five hundred* feet is the quantity usually sold, which means a distance of 250 ft. from blast but in some cases a greater length of leading wire is needed

CONNECTING WIRE.

No. 22—No. 22 B. & S gauge copper wire, 2 lb. spools, 600 ft. on a spool, per pound..... $0.40

This is a pure copper wire perfectly insulated It is used in connecting the electrical fuses to each other where several charges are to be fired simultaneously, the holes being far apart. A small quantity only of this will be needed if the fuse wires be picked up after each blast, as they can be twisted together and used in place of connecting wire

Safety of Electric Firing

Electric firing is by far the safest method, because there is no waiting for the shot to go and no doubt about when it is going to explode. It enables the blaster to retire to an unexposed place in perfect safety and without undue haste, and eliminates all danger of accident because of miscalculation of the time it takes fuse to burn or because of defective fuse which has frequently resulted in injury to men who have returned to examine a blast about the time it exploded

In coal mines electric firing does away with practically all danger of the blast igniting gas and furthermore makes it possible to have every man out of the mine when the blast is fired. Many operators consider this latter feature so important that they have adopted electric firing because of this consideration alone.

Smoke from burning fuse is entirely avoided, an item of no little value in mine work.

ELECTRIC BLASTING FUSES.

Cotton Covered, Quintuple Strength, Double Wound Insulation, Warranted Perfect.

Feet.....	4	6	8	10	12
Per 100....	$3.00	3.54	4.08	4.62	5.16

50 IN A BOX, 500 IN A CASE.

BATTERIES AND ELECTRIC FUSES.

When a good deal of blasting is to be done, it is usual to set off the blasts by means of a battery and electric exploder (called an electric fuse). In this way any number of blasts from five or ten up to forty can be fired at once. This is found extremely convenient when it is necessary to get rid of a very large stump or extra large bowlder, as frequently several ordinary sized charges fired simultaneously will destroy an obstacle which would not be affected by the same charges fired successively or by one charge as large as all the smaller ones combined.

Directions for Using Machine.

An electric fuse should be used with the wires attached of such length that the ends may protrude from the surface after the hole is charged, the fuse head being in the center of the charge

Tamp with dry sand, or in such a manner that the wires will not be cut nor the insulated covering upon them injured.

When all the holes to be fired at one time are tamped, separate the ends of the two wires in each hole, joining one wire of the first hole with one of the second the other or free wire of the second with one of the third, so proceeding to the end or the last hole.

If the wires attached to the electric fuses should not be long enough, use connecting wire for joining

All connections of wires should be made by twisting together bare and *clean* ends, and it will be best if the joining parts be bright.

The charges having all been connected as directed above, the free wire of the first hole should be joined to one of the "leading" wires, and the free wire of the last hole with the other of the two leading wires. The leading wires should be long enough to reach a point at a safe distance from the blast—say two hundred and fifty feet, at least

All being ready, and not until the men are at a safe distance, connect the leading wires, one to each of the projecting screws on the top of the machine, through each of which a hole is bored for the purpose, and bring the nuts down firmly upon the wires.

Now, to fire, taking hold of the handle for the purpose, lift the rack (or square rod toothed upon one side) to its full length and press it down, with all force, bringing the rack to the bottom of the box with a *solid thud*, and the blast will be made.

ANNUNCIATORS.

HOUSE.

"Eclipse," Natural Oak Finish.

4002E	2 indications, 1 row	each $3 50
4003E	3 indications, 1 row, "	4.00
4004E	4 indications, 2 rows "	4.45
4006E	6 indications, 2 rows, "	6 00
4008E	8 indications, 2 rows "	7 60
4010E	10 indications, 2 rows, "	9 50
4012E	12 indications, 2 rows, "	10.70
4014E	14 indications, 2 rows, "	12 45

"...happ," Natural Oak, Antique Oak, Walnut, Ash and Cherry Finish.

3322E	2 indications, 1 row	each $4 00
3323E	3 indications, 1 row "	4 50
3324E	4 indications, 2 rows, "	5 00
3326E	6 indications, 2 rows, "	7 00
3328E	8 indications, 2 rows, "	9.00
3330E	10 indications, 2 rows, "	11.00
3332E	12 indications, 2 rows, "	13.20
3334E	14 indications 2 rows, "	1 40
3336E	16 indications 2 rows, "	17 60
3338E	18 indications 3 rows, "	19 80
3340E	20 indications 3 rows "	22.00
3341E	21 indications 3 rows "	23..0

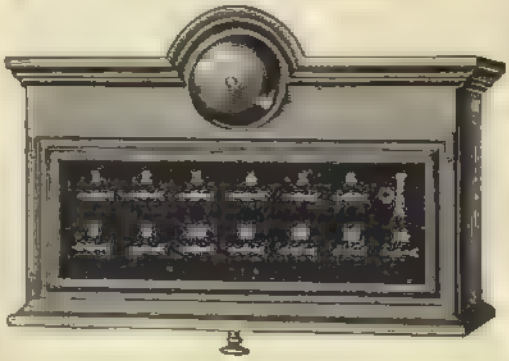
OVE 21 INDICATORS, ADD PER INDICATOR $1.10.

HOUSE.

Natural Oak, Antique Oak, Golden Oak or Mahogany Finish.

No. 1104E	4 indications,	each $8 00
No. 1106E	6 indications, - "	10 00
No. 1108E	8 indications, -	12 50
No. 1110E	10 indications, - "	15 00
No. 1112E	12 indications, - "	17 50
No. 1114E	14 indications, - "	20 00
No. 1116E	16 indications, - "	22 50
No. 1118E	18 indications, - "	25 00
No. 1120E	20 indications, - "	27 50

CAR AND STEAMER.

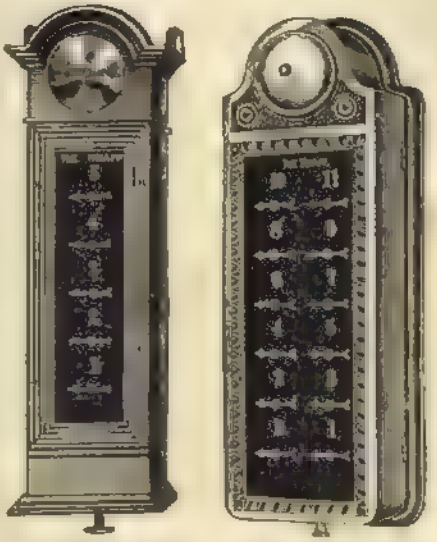


Natural Oak, Antique Oak, Golden Oak or Mahogany Finish.

No. 2208E	8 indications, -	each $12.50
No. 2210E	10 indications, - "	15.00
No. 2212E	12 indications, - "	17 50
No. 2214E	14 indications, - "	20 00
No. 2216E	16 indications, - "	22 50
No. 2218E	18 indications, - "	25 00
No. 2220E	20 indications, - "	27.50

This annunciator has a locking catch and cannot be jarred down. The case may be of special design.

ELEVATOR.



Nos. 4153E to 4162E. Nos. 2113E to 2122E.

Natural Oak, Antique Oak, Golden Oak or Mahogany Finish.

No. 4153E	3 indications, -	each $4 50
No. 4154E	4 indications,	" 6.00
No. 4155E	5 indications, -	" 7.00
No. 4156E	6 indications, -	" 8 00
No. 4157E	7 indications, -	" 9 00
No. 4158E	8 indications, -	" 10 00
No. 4159E	9 indications, -	" 11 25
No. 4160E	10 indications, -	" 12 50
No. 4162E	12 indications, -	" 15 00

ABOVE 12 INDICATORS, ADD PER INDICATOR $1.25. WITH MOUNTING BOARD, EXTRA $0 75.

Metallic Case with Hinged Back, Old Copper, Oxidized Copper or Bower-Barff Finish.

No. 2113E	3 indications, 1 row,	each $9 75
No. 2114E	4 indications, 1 row,	" 10.75
No. 2115E	5 indications, 1 row,	" 12.00
No. 2116E	6 indications, 1 row,	" 13 50
No. 2117E	7 indications, 1 row,	" 15 50
No. 2118E	8 indications, 1 row,	" 17 50
No. 2119E	9 indications, 1 row,	" 19 50
No. 2120E	10 indications, 2 rows,	" 21 50
No. 2121E	11 indications, 2 rows,	" 23 50
No. 2122E	12 indications, 2 rows	" 24 50

ABOVE 12 INDICATORS, ADD PER INDICATOR $2.00.

The cable enters from the back and the wires are distributed to terminal contacts set on the back board. This annunciator may also be used for club or office

"ACME" TWO POINT.

The demand cannot get out of our catalogue so we mention it to show you that this very handy appliance and at the modest price will should find a ready sale

No. 1300E	With bell, -	each $3 00
No. 1301E	With buzzer,	3 00

This is a very serviceable article The case being made of metal, enamel finished

BE SURE TO SPECIFY FINISH WANTED ON ALL ORDERS

INCANDESCENT ELECTRIC LAMPS.

SHELBY "USEFUL LIGHT."

(Type A.) Edison Base.

C. P.	STD. PKGS.	90 TO 125 VOLTS	95 TO 130 VOLTS	200 TO 260 VOLTS	FROSTING. EXTRA
		EACH	EACH	EACH	EACH
2	240	$0 22	$0 20		$0 02½
4	240	22	20		.02½
8	240	22	20	$0 22	.02½
10	240	22	20		.02½
12	240	22	20		.02½
16	240	22	20	22	.02½
20	240	22	20	22	.02½
24	240	22	20	22	.03
32	100	40	30	40	.03

For Tipless lamps add 2c to list.

Natural colored lamps, Green and Blue one and one-half times the list price of the same type candle power and voltage. Purple one and three quarter times. Ruby and Opal two times. Amber and Canary two and one-half times. For artificially colored lamps, Red, Blue, Orange, Purple, Green and Frosted add 25 per cent to list. T. H to Edison and Westinghouse to Edison adapters 1½c each when ordered with an equal number of lamps.

SHELBY SIGN.

Type A Edison Base.

C. P.	STD. PKGS.	90 TO 125 VOLTS	95 TO 130 VOLTS	200 TO 260 VOLTS	FROSTING. EXTRA
		EACH	EACH	EACH	EACH
2	240	$0 22	$0 20		$0 02½
4	240	22	20		.02½
5	240			$0 22	.02½

For Tipless lamps add 2c to list.

Natural colored lamps, Green and Blue one and one-half times the list price of the same type candle power and voltage. Purple one and three quarter times. Ruby and Opal two times. Amber and Canary two and one-half times. For artificially colored lamps, Red, Blue, Orange, Purple, Green and Frosted add 25 per cent to list.

T. H to Edison and Westinghouse to Edison adapters 1½c each when ordered with an equal number of lamps.

"EQUALITY" REGULAR OVAL ANCHORED.

(Type B.) Edison Base

C. P.	STD. PKGS.	90 TO 125 VOLTS	95 TO 130 VOLTS	200 TO 260 VOLTS	EXTRA FOR FROSTING
		EACH	EACH	EACH	EACH
2	240	$0 22	$0 20		$0 02½
4	240	22	20		.02½
8	240	22	20	$0 22	.02½
10	240	22	20		.02½
12	240	22	20		.02½
16	240	22	20	22	.02½
20	240	22	20	22	.03
24	240	22	20	22	.03
32	240	40	30	40	.03
50	100	40	30	40	.04
100	20	1 50	1 00	1 00	.05

For Tipless lamps add 2c to list.

Natural colored lamps, Green and Blue one and one-half times the list price of the same type candle power and voltage. Purple one and three quarter times; Ruby and Opal two times, Amber and Canary two and one-half times.

For artificially colored lamps, Red, Blue, Orange, Purple, Green and Frosted add 25 per cent to list.

T. H to Edison and Westinghouse to Edison adapters 1½c each when ordered with an equal number of lamps.

SHELBY FACTORY OR MILL TYPE.

(Type A.) Edison Base.

C. P.	STD. PKGS.	95 TO 130 VOLTS	EXTRA FOR FROSTING
		EACH	EACH
16	240	$0 30	02½

These lamps are doubled anchored, with heavy filament for street railway, factory and mill use.

ECONOMICAL TURN-DOWN.

Edison Base

C. P.	STANDARD PACKAGE	95 TO 130 VOLTS	200 TO 250 VOLTS
		EACH	EACH
8-1	200	$0 60	$0 65
16 1	200	60	65
32×1	200	70	

Frosted or ornamental colored add 5 cents net per lamp.

Natural colored lamps all colors 25 cents net each.

SHELBY ROUND BULB.

(Type A.) Edison Base.

C. P.	STD. PKGS.	90 TO 125 VOLTS	95 TO 130 VOLTS	200 TO 260 VOLTS	EXTRA FOR FROSTING
		EACH	EACH	EACH	EACH
4	240		$0 25		02½
8	200	$0		$0	02½
10	200		25		02½
16	200	30	30	30	02½
16	200		40	35	02½
32	100		40	35	03½
32	100		1		03½
50	50				03½

For Tipless lamps add 2 cents to list.

Natural colored lamps, Green and Blue one and one-half times the list price of the same type candle power and voltage. Purple one and three quarter times. Ruby and Opal two times. Amber and Canary two and one-half times.

For artificially colored lamps, Red, Blue, Orange, Purple, Green and Frosted add 25 per cent to list.

T. H. to Edison and Westinghouse to Edison adapters 1½ cents each when ordered with an equal number of lamps.

WE PRINT THE STANDARD LIST PRICES. WHERE NO LIST IS GIVEN THE LAMPS ARE NOT MADE

INCANDESCENT ELECTRIC LAMPS.

SHELBY TUNGSTEN.

Edison Base.
Specify Watts, Volts, Clear, Bowl Frosted or all Frosted, Made Only in Voltages from 100 to 125

APPROXIMATE C. P.	WATTS	STANDARD PACKAGE	CLEAR	ALL OR BOWL FROSTED
			EACH	EACH
20	25	100	$0 85	$0 90
*32	40	50	1 00	1 05
32	40	50	1 10	1 15
48	60	50	1 40	1 47
80	100	24	1 75	1 85
160	250	12	3 50	3.75

**Small base same as on regular equality lamps. This lamp will not be shipped unless specially ordered*

Information furnished on Tungsten sign lamps on request.

SHELBY MERIDIAN TUNGSTEN.

Edison Base.
100 to 125 Volts.

APPROXIMATE C. P.	DIAM. IN.	WATTS	STANDARD PACKAGE	CLEAR	ALL OR BOWL FROSTED
				EACH	EACH
No. 1—32	3¾	40	24	$0 50	$ [illegible]
No. 2—48	5	60	24	1 75	[illegible]

Shipped half frosted from tip up unless otherwise ordered.

SHELBY TANTALUM.

Edison Base

Specify Watts, Volts Clear or Frosted, 100 to 125 Volts.

APPROXIMATE C. P.	WATTS	STANDARD PACKAGE	CLEAR	ALL OR BOWL FROSTED
			EACH	EACH
20	40	50	$0 [illegible]	$0 [illegible]
40	80	[illegible]	85	[illegible]

The Tantalum lamp is not guaranteed as to performance on alternating current.

SHELBY MERIDIAN TANTALUM.

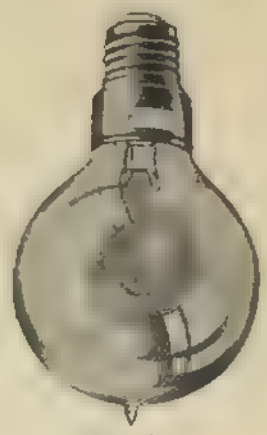
Edison Base.

Specify Watts, Volts, Clear or Frosted, 100 to 125 Volts.

APPROXIMATE C. P.	DIAM. IN.	WATTS	STANDARD PACKAGE	CLEAR	ALL OR BOWL FROSTED
				EACH	EACH
No. 1—20	3¾	40	24	$0 75	$0 75
No. 2—40	5	80	24	1 00	1 00

The Tantalum lamp is not guaranteed as to performance on alternating current.

STEREOPTICON.



Edison Base.

C. P.	WATTS	STANDARD PACKAGE	20 TO 94 VOLTS	94 TO 130 VOLTS	200 TO 260 VOLTS
			EACH	EACH	EACH
16	64	20		$0 [illegible]	
20	76	[illegible]		10	
32	128	100		60	
32	145	200		50	
32	128	50	$0 90	50	[illegible]
50	200	50	1 25	75	.25
100	375	20	2.50	1 50	2 50

The 20 C. P. is frosted except a 2 in. round space, largely used by opticians and is called 'Bulls Eye' frosted. Bulls eye frosting 25% extra. 32 C. P. .60 list is round. 32 C. P. .50c list is pear shaped.

REFLECTOR.

Edison Base

C. P. REFLECTOR	WATTS	VOLTS	SILVERED CLEAR		FROSTING EXTRA
			EACH	EACH	EACH
5	14	45 to 60	$0 40	$0 30	$0 02½
40	35	45 to 60	.40	30	.02½
50	45	45 to 60	.40	30	.02½
6	14	95 to 130	.35	25	.02½
40	35	95 to 130	35	.25	.02½
50	45	95 to 130	35	.25	.02½
40	40	200 to 260	.40	.30	.02½
50	52	200 to 260	40	.30	.02½

These lamps can be had as reflector, all clear, half frosted and all frosted.

ONE HUNDRED IN A STANDARD PACKAGE.

WE PRINT THE STANDARD LIST PRICES. WHEN NO LIST IS GIVEN THE LAMPS ARE NOT MADE.

BICYCLE BELLS, WHISTLES AND HORNS.

REVONOC BELLS.

No. 125 REVONOC—1¾ in., nickel plated and polished, rotary electric alarm, bevel beaded wrought gong, w't per doz. 2½ lbs.....per dozen $2 25

No. 135 REVONOC—2 in., otherwise same as No. 125, w't per doz. 3¼ lbs .per dozen 2 50

No. 25 REVONOC—1¾ in., nickel plated and polished, rotary electric alarm, bevel beaded stamped gong, loud tone, w't per doz. 3 lbs.....per dozen $3.00

No. 35 REVONOC 2 in., otherwise same as No 25, w t per doz. 4¼ lbs. .per dozen 4 20

No. 45 REVONOC—2½ in., nickel plated, two wrought gongs of different tone, producing a loud alarm, w't per doz. 4½ lbs., per dozen.. ..... $4 00

No. 140 REVONOC—2 in., nickel plated electric rotary alarm, gong handsomely ornamented with fleur-de-lis design bevel bead, w't per doz. 6 lbs.,per dozen..... $6.00

No. 150 REVONOC—2 in., nickel plated, with American flag enameled in colors against pebbled back-ground bevel beading, rotary electric alarm, w't per doz. 6¼ lbs ..... .per dozen $6 00

ONE IN A BOX

REVONOC BELLS.

No. 65 REVONOC—2¼ in., heavily nickel plated and polished, continuous ringing chime, rotary electric alarm; alarm continues during forward and backward action of the lever, w't per doz. 6½ lbs per dozen..... $7 00

No. 70 REVONOC—2¼ in nickel plated and polished, wrought metal gong, bevel beading, push button continuous alarm, w't per doz. 6½ lbs per dozen $7 80

No. 90 REVONOC—2¼ in., nickel plated and polished, bevel beading, with American flag enameled in colors, raised on pebble back ground push button continuous alarm, w't per doz. 6½ lbs per dozen $8 75

ONE IN A BOX

NEW DEPARTURE BELLS.

No. E5—2½ in., rotary electric alarm, nickel plated, bevel and rope beading lock clamp, w't per doz 6¾ lbs., per dozen $7 80

No. 35C—2¼ in., nickel plated and polished, continuous ringing chime, attractive in design, w't per doz. 7 lbs., per dozen..... $15 00

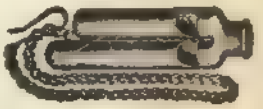
ONE IN A BOX

NEW DEPARTURE BELLS.

No. B6—BRONKO rotary electric alarm, nickel plated, very loud, well finished, lock clamp, continuous ringing, w't per doz. 9 lbs.....per dozen $12 00

ONE IN A BOX

WHISTLES.



No. 72—DUPLEX, nickel plated, two tubes deep penetrating blast, with 10 in. chain, w't per doz. ½ lb., per dozen $2 75

No. 18—ECHO, nickel plated bowl and mouthpiece, with ring to fasten on chain, w't per doz. ½ lb....per dozen $3.00

No. 12—UNIVERSAL, nickel plated, two tubes, giving a very deep tone, with 10 in. chain, length of tubes and mouthpiece 2½ in., w't per doz. ½ lb per dozen $3.00

No. 11—UNIVERSAL, large size, length 3½ in., with 11 in. chain, otherwise same as No. 12, w't per doz. ½ lb., per dozen..... 3.50

ONE DOZEN IN A BOX

BICYCLE HORNS.

Pure Rubber Bulb, with Bracket to Fasten on Handle Bar.

No. 11G—All brass, 6 in. long, w't per doz. 2 lbs.....per dozen $5 00

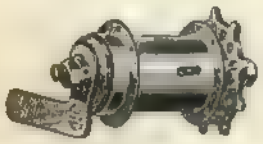
No. 22G—Full nickel plated, 8 in. long, w't per doz. 3 lbs..... per dozen 9 00

No. 2G—8½ in. long, pure rubber bulb, all brass, w't per doz. 3 lbs.. per dozen $15.00

ONE DOZEN IN A BOX.

COASTER BRAKES, HUBS, CHAINS, ETC.

COASTER BRAKES.



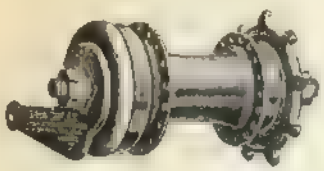
No. 16—New Atherton, 30 spokes, ⅞ in. 9 tooth sprocket, w't 2½ lbs., each $6.00

No. 18—For juvenile wheels, ⅞ in. 8 tooth sprocket, 28 holes, w't 2¼ lbs., each.. .... 6 00

A perfectly free coaster, with smooth, positive braking qualities, no springs and no delicate parts to get out of order. Guaranteed to be free from faulty material and workmanship.

No. 6—Morrow, 30 spokes, ⅞ in. sprocket, 8 or 9 tooth w't 2½ lbs. . . . each $7 50

No. 12—New Departure, 36 spokes, ⅞ in sprocket, 8 or 9 tooth, w't 2½ lbs each $7 50



No. 5—Corbin's, 36 spokes, ⅞ or 1 in., sprocket, 8 or 9 tooth, w't 2½ lbs., each $7.50

No. 4—Corbin's, for juvenile bicycles, 28 spokes, ⅞ in. sprocket 8 tooth w't 2 lbs .. ..each 7 50

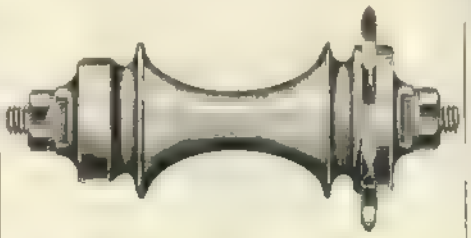
No. 1—Eclipse, 36 spokes, ⅞ in. sprocket, 9 tooth, w't 1¾ lbs..... each $7.50

ONE IN A BOX

HUBS.

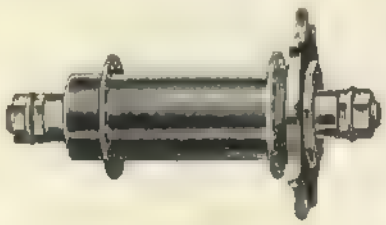
Front

No. 16 Reduced center turned from bar steel, all bearings made of tool steel, drilled, 32 holes, w't ¾ lb..... each $1.00



Rear

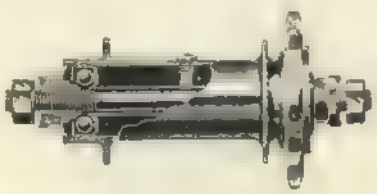
No. 26—Reduced center, turned from bar steel all bearings made of tool steel drilled, 36 holes, w't 1 lb ..... each $1 75



No 2

No. 1—Front, tubular drilled, 32 holes each. $1 00

No. 2—Rear, tubular drilled, 36 holes, each... .... 1 50



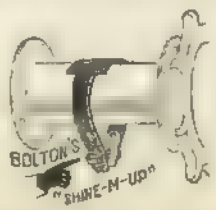
No 4

No. 3—Front, best quality, turned from bar, drilled 32 holes... .....each $1.50

No. 4—Rear, best quality, turned from bar, drilled, 36 holes..... each 2 00

ONE IN A BOX

HUB CLEANING STRAPS.



No. 10—Bolton's, for hubs and coaster brakes, w't per doz. ½ lb....per dozen $0.70

This strap will keep the hubs bright and clean.

BICYCLE AXLES.

No. 10—Front, ⅜ in 24, 26 and 28 threads, w't per doz. 12 oz per dozen $0 80

No. 15 Rear, ¾ in 24, 26 and 28 threads, w't per doz. 1¼ lbs ... .. .per dozen 84

AXLE SETS.

White Nickel Finish.

No. 1—Front, ⅜ in., fitted with quick action cones, nuts and washers, w't per doz 2 lbs .. ..per dozen $2 50

No. 2—Rear, ½ in., fitted with quick action cones, nuts and washers, w't per doz 3½ lbs..... .....per dozen 3 50

For repair work—easily adjusted.

BICYCLE CHAINS.

No. 5G—Straw blocks blued sides ⅜ or ½ in w 1¼ lbs each $0 95

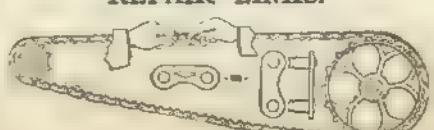
No. 9—Diamond, plain straw tempered B blocks, hard rivets, plain blued B sides, ⅞ in., w't 1¼ lbs.....each $1 05

No. 29—Diamond, polished straw tempered B blocks, hard rivets, top polished, blued solid B sides, ⅞ in., w't 1¼ lbs.....each $1 35

No. 31—Diamond, polished straw tempered B blocks, hard rivets, top polished, blued B sides, with diamond perforation, ⅞ in., w't 1¼ lbs ....each $1.45

No. 45—Diamond, polished straw tempered nickel steel B blocks, hard rivets full polished and embossed, bright B chamfered sides, with diamond perforations, w't 1¼ lbs.....each $2.50

REPAIR LINKS.



No 1G ⅜ in .....per dozen boxes $1 20
No. 2G ½ in.. .. ... " " 1 20

TWO LINKS IN A BOX

BASE BALLS AND MASKS.

BASE BALLS.

$0.10

No. X12—"Cruso" Famous, white cover, sewed with red thread, nothing as attractive ever before offered in a ten-cent ball, each in a separate box, per dozen..... $1.20
ONE DOZEN IN A CARTON

$0.05

No. X12½—"Cruso" Hero, white cover, extra large, nothing equal ever offered in a five-cent ball.....per dozen $0.60
ONE DOZEN IN A BOX.

$0.05

No. X13—Dandy, two piece cover, an excellent five-cent ball.....per dozen $0.60
ONE DOZEN IN A BOX.

$0.05

No. X14—Boss, two piece cover, children's ball.....per dozen $0.60
ONE DOZEN IN A BOX.

MASKS.

$4.00

No. 350—"Rev-o-noc," patented pneumatic cushions, neck protector, finest cold drawn annealed steel, burnished and copper plated, leather chin piece, per dozen $48 00

The pneumatic cushion pads are made of pure para rubber, covered with perspiration proof khaki cloth, extending around the side of the face and across the chin, conforming readily to the contour of the face. A nozzle attached to the pad, by one operation, inflates the entire pad.
ONE IN A BOX.

$3.50

No. 200 — "Rev-o-noc," sun shade, heavy steel, black enameled, hair stuffed leather pads, made on a professional model per dozen...$42.00

This mask with the new style continuous hair filled pads and the sun shade attachment makes the most satisfactory mask ever produced.
ONE IN A BOX.

$2.50

No. 117—"Rev-o-noc," men's professional, special neck protector, padded chin piece finest cold drawn steel wire and clamps, burnished and copper plated, black hair filled pads.
per dozen $30.00

Made and finished in a careful manner by experienced workmen.
ONE IN A BOX.

$2.00

No. 113—"Rev-o-noc," professional league mask, black enameled extra heavy steel wire, each joint reinforced with a steel clamp, very fine horse hide pads, hair stuffed.
per dozen $24.00

Made with the idea of making a strong and serviceable mask that will give entire satisfaction.
ONE IN A BOX.

MASKS.

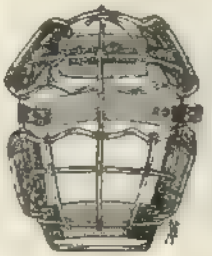
$1.50

No. 111—"Rev-o-noc," mens' size black enameled steel wire joints reinforced with steel clamps, chin and forehead of leather, hair filled pads.
per dozen $18 00

A perfectly safe and reliable mask, well braced, being held together in such a manner that it will not become loose by usage.
ONE IN A BOX.

$1.00

No. 110—"Rev-o-noc," mens' size, black enameled, steel wire, joints reinforced with steel clamps, chin and forehead pieces of leather, well filled pads.
per dozen ... $12.00
ONE IN A BOX.



$0.75

No. 18 — "Rev-o-noc," amateur size, very heavy enameled wire, well stuffed pads chin and forehead pieces of leather.
per dozen..... $9.00
ONE IN A BOX.

$0.50

No. 25—"Rev-o-noc," youth's size, silver finished heavy wire, well stuffed leather pads, with forehead and chin pieces of leather.
per dozen..... $6.00
HALF DOZEN IN A BOX.

$0.35

No. 16 — "Rev-o-noc," youth's size, silver finished heavy wire, four well stuffed pads, elastic strap.
per dozen..... $4.20

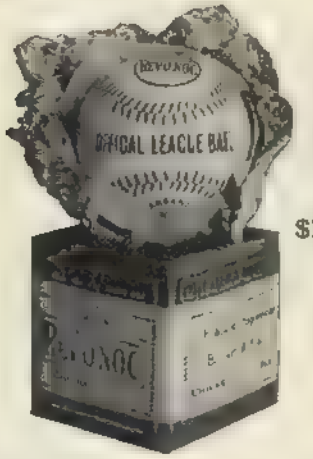
$0.25

No. 11 — "Rev-o-noc," boys' large size, heavy wire, leather pads, and elastic straps.
per dozen..... $3.00
HALF DOZEN IN A BOX.

REV-O-NOC

BASE BALLS.

CRUSO

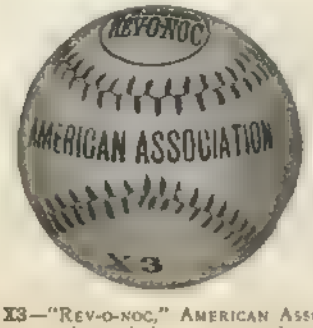


$1.50

No. XO—"Rev-o-noc." Official League. hand made on National League specifications, horse hide cover, para rubber center, wrapped with highest quality wool yarn, guaranteed to last a full nine inning game, each ball wrapped in tin foil, and packed in a separate box ..... per dozen $18.00
ONE DOZEN IN A CARTON

$1.00

No. X2—"Rev-o-noc" League made of all wool yarn with rubber center horse hide cover, regulation size and weight, wrapped in tin foil and packed in a separate box, the best "dollar league" warranted for nine innings per dozen..... $12 00
ONE DOZEN IN A CARTON



$0.75

No. X3—"Rev-o-noc," American Association, horse hide cover, regulation size and weight, warranted for nine innings a popular high school ball each ball wrapped in tin foil and packed in a separate box..... per dozen $9 00
ONE DOZEN IN A CARTON.

$0.50

No. X4—"Rev-o-noc" Professional, horse hide cover, regulation size and weight, a rattling good "fifty center," each ball packed in a separate box wrapped in tin foil,..... per dozen $6.00
ONE DOZEN IN A CARTON

$0.50

No. X6—"Rev-o-noc" Amateur, horse hide cover, rubber center, regulation size and weight, each ball in a separate box..... per dozen $6 00
Warranted the best fifty-cent ball on the market.
ONE DOZEN IN A CARTON.

$0.25

No X5 "Rev-o-noc" Challenge, horse hide cover, regulation size and weight, each ball packed in a separate box the best twenty-five cent ball made, per dozen.. ..... $3 00
ONE DOZEN IN A CARTON

$0.25

No. X8—"Cruso" Home Run, horse hide cover, full weight and size, each ball packed in a separate box a very popular twenty-five cent practice ball, per dozen..... $3 00
ONE DOZEN IN A CARTON.

$0.25

No. X9—"Cruso" Boys' League, horse hide cover, the best boy's ball made, packed one in a box.....per dozen $3 00
ONE DOZEN IN A CARTON.

$0.15

No. X10½—"Cruso" Boy's Favorite, white sheep skin, cover with red stitching, regulation size and weight, a beauty.....per dozen $1.80
ONE DOZEN IN A BOX.

$0.10

No. X10—"Cruso" Junior Dead, white cover, large, an excellent boys ball, per dozen $1 20
ONE DOZEN IN A BOX.

$0.10

No X11 "Cruso" Young American white cover good size a first class ten cent ball.....per dozen $1 20
ONE DOZEN IN A BOX.

FLAGS AND PENNANTS.

UNITED STATES FLAGS.

BEST WOOL BUNTING.

The best finished and strongest wool bunting flag ever offered to the trade. Seams all double stitched; hems made with interlining of strong tape. Small sizes finished with canvas heading and grommets. Large sizes, from a 10x15-foot flag, with strong canvas heading and manila rope. Full complement of stars (now 46) sewed on both sides of the field, with the exception of the two smallest sized flags, which have 13 stars.

2	x 3 ft.	each	$ 1.68	9	x15 ft.	each	$21 28
2½	x 4 ft.	"	2.52	9	x18 ft.	"	23 68
3	x 5 ft.	"	3.08	10	x15 ft.	"	23 04
3	x 6 ft.	"	3 92	10	x16 ft.	"	23 56
4	x 6 ft.	"	4 34	10	x18 ft.	"	27 20
4	x 7 ft.	"	4.76	10	x20 ft.	"	28 80
4	x 8 ft.	"	5.88	12	x18 ft.	"	29 76
5	x 6 ft.	"	6.30	12	x20 ft.	"	33 60
5	x 9 ft.	"	7.00	12	x22 ft.	"	36 80
5	x10 ft.	"	7.70	12	x24 ft.	"	40 00
6	x 9 ft.	"	8.12	12½	x25 ft.	"	43 20
6	x10 ft.	"	8 40	15	x24 ft.	"	46 40
6	x12 ft.	"	10 50	15	x25 ft.	"	48 00
7	x11 ft.	"	10 92	15	x30 ft.	"	62 40
7	x12 ft.	"	11.48	20	x30 ft	"	76 80
7	x14 ft.	"	14 42	20	x36 ft.	"	92 80
8	x12 ft.	"	14 28	20	x40 ft.	"	104 00
8	x15 ft.	"	19 20	25	x40 ft.	"	130 00
8	x16 ft.	"	20.80	25	x50 ft.	"	160.00

SEWED COTTON BUNTING.

Fine Fast Color, Guaranteed to Launder.

Small sizes with canvas heading and grommets. Large sizes from 10x15 feet with strong canvas heading and rope. These flags are made with the same care and finish as our all-wool bunting flags, and for outside decorations are more serviceable than the latter. All flags, with the exception of the two smallest sizes, which have 13 stars, have the full complement of stars (now 46) sewed on both sides

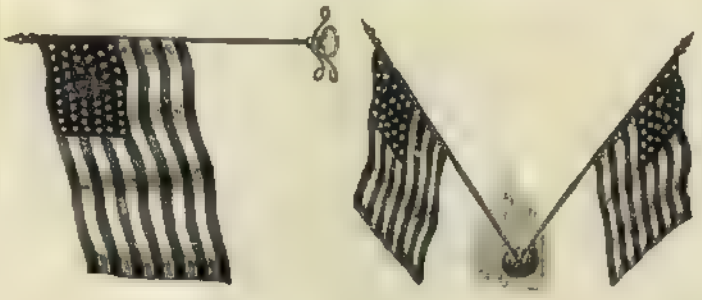
2	x 3 ft.	each	$0 68	10	x15 ft	each	$ 6 84
2½	x 4 ft	"	94	10	x16 ft	"	7 08
3	x 5 ft	"	1 36	10	x18 ft	"	7 80
4	x 6 ft	"	1 48	10	x20 ft	"	9 60
4	x 7 ft	"	1 80	12	x18 ft	"	10 80
4	x 8 ft	"	2 16	12	x20 ft	"	12 00
5	x 8 ft	"	2 28	12	x22 ft	"	13 20
6	x 9 ft.	"	2 96	12	x24 ft	"	13 80
6	x10 ft	"	3 19	12½	x25 ft	"	14 40
6	x12 ft	"	3 88	15	x30 ft	"	16 80
8	x12 ft	"	5 24	20	x30 ft	"	21 60
8	x15 ft	"	6 48	20	x40 ft	"	30 00
9	x18 ft	"	7.08	25	x50 ft	"	45 60

Larger, or any other sizes not listed, made to order at proportionate prices.

Cotton bunting, red, white and blue, 24 in. wide..... per yard $0 20

Standard wool bunting, red, white and blue, 18 in. wide, per roll of 40 yards 13 00

EASYPUT FLAGS AND DECORATIONS SETS.



Metal Staffs Fitted with Vacuum Rubber Cups.

7x10 in., silk flag, 12 in. staff	per dozen	$ 4.00
8x12 in., silk flag, 14 in. staff	"	5.00
10x15 in., silk flag, 16 in. staff	"	7.00
12x18 in., silk flag, 20 in. staff	"	9.00
16x24 in., silk flag, 24 in staff	"	12 00
16x24 in., soft cotton bunting flag, 24 in. staff	"	4.00
No. 18—Decoration sets, consisting of two 4x6 in. silk flags, per dozen sets		5.00
No. 20—Decoration sets, consisting of two 5x8 in. silk flags per dozen sets		7.00
No. 21—Decoration sets, consisting of two 7x10 in. silk flags, and 2-12 in. staffs	per dozen sets	9.00

These will stick to a window or brick wall and will withstand the strongest wind.

PENNANTS.

Finest Quality All Wool Felt, Bound with Satin Ribbons, Two Sets of Double Ribbon Streamers.

6x24 in	per dozen	$ 4 20
12x24 in	"	6.80
9x36 in	"	8.50
15x36 in	"	10.60
18x36 in	"	11.70

Pennants of the following colleges are carried in stock:

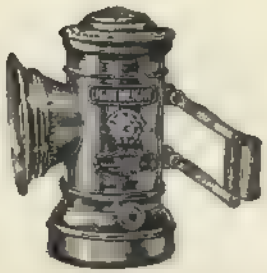
Amherst	Beloit	Chicago	Dartmouth	Indiana
Armour	California	Columbia	Harvard	Iowa
Army	Carlisle	Cornell	Illinois	Michigan
Minnesota	Northwestern	Pennsylvania	Stanford	Wisconsin
Missouri	Notre Dame	Princeton	Vanderbilt	Wellesley
Nebraska	Navy	Purdue	Vassar	Yale

IMPORTANT.

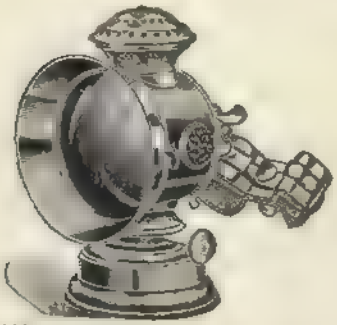
Above prices apply on stock goods in any quantity and on pennants with special lettering up to twelve letters in lots of ½ doz. or more. On special pennants in lots of less than ½ dozen, write for prices.

BICYLE LAMPS.

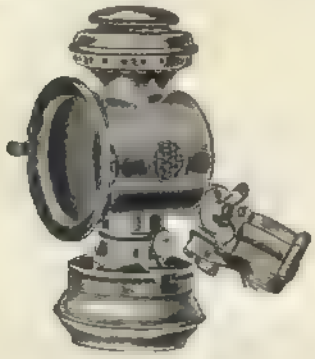
OIL.



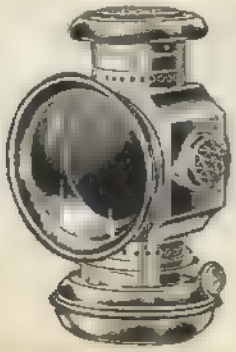
No. 210—LIGHT WEIGHT brass, full nickel plated, height 6 in., 2½ in. lens, w't ⅞ lb.....each $1 25



No. 260—STERLING, brass, nickel plated and polished, height 7½ in., 2½ in. lens, w't ⅞ lb each $1 50



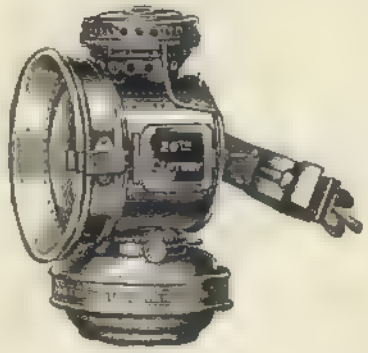
No. 212—SOLAR, brass, full nickel plated, removable top head, aluminum reflector and wick lock burner 2½ in. double convex lens ¼ in. red oval side lights, combination head and fork bracket, height 6 in., w't 1⅝ lbs..each $1 50



No. 216 COLUMBIA, brass, full nickel plated 2½ in. lens height 6 in., w't 1⅝ lbs.....each $1.80

ONE IN A BOX.

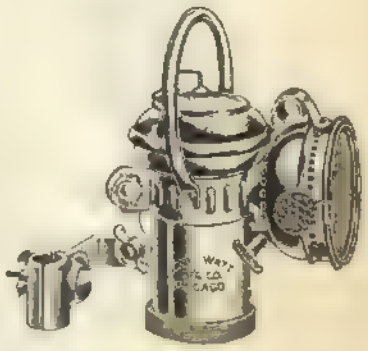
OIL.



No. 220—20TH CENTURY, brass, full nickel plated, self locking wick, improved locking device for oil fount aluminum parabolic reflector, hinged front and side doors rigid bracket, height 5½ in., 2½ in. lens, w't 1¼ lbs.....each $2.00

ONE IN A BOX.

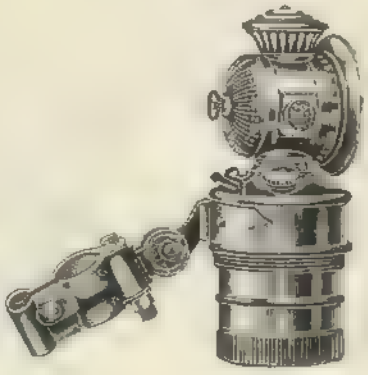
ACETYLENE GAS.



No. 217B COLUMBIA buggy, gun metal finish, two side lights, 2½ in. lens, height 7½ in., fitted with heavy bell and dashboard bracket, w't 2¼ lbs., each $3 50

Automatic water feed, controlled by gas pressure.

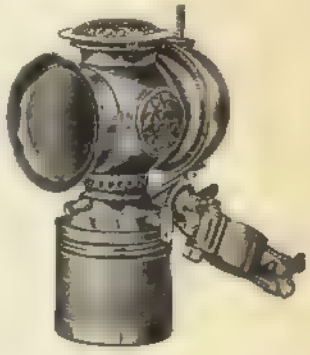
ACETYLENE GAS



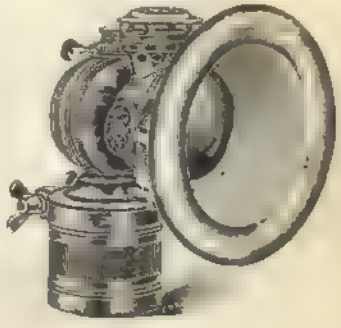
No. 230G—SEARCH LIGHT brass, full nickel plated, automatic in action will not jar out height 8 in. 2½ in. lens w't 1¾ lbs.....each $2 50

No. 217—COLUMBIA, brass, full nickel plated, automatic water feed controlled by gas pressure, gas cock regulates the light, jewel side lights, 2½ in. double convex lens height 7¼ in. w't 1⅝ lbs each..... $3 00

ONE IN A BOX.



No. 218—SOLAR, brass, full nickel plated, new patent valve, turns on or off, both gas and water, produces a light that projects 100 ft., 1½ in. jewel side lights, 1½ in. reflector, height 7 in., 2½ in. lens, w't 2 lbs.....each $3 00



No 264 20TH CENTURY, motorcycle and bicycle heavy gauge brass, full nickel plated and polished, red and green jewel side lights, 6 in. front reflector, 2½ in. lens, height 7¼ in., w't 1⅝ lbs.....each $5.25

ONE IN A BOX.

BICYCLE LAMPS, CARBIDE, TOOL BAGS, ETC.

ACETYLENE GAS LAMPS.

No. 222—20TH CENTURY heavy gauge brass, highly nickel plated and polished, jewel side lights, ... reflector, 2½ in. lens, capacity 4 to 6 hours, height 7 in., combination bracket, w't 1¾ lbs. ..... each $3 00

ONE IN A BOX.

LAMP BRACKETS.

No. 9G—Extension, nickel plated steel clamps on any handle bar, fits any make gas lamp, w't per doz. 2½ lbs. per dozen $4 00

ONE DOZEN IN A BOX.

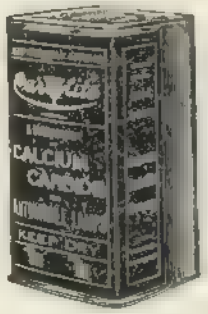
CALCIUM CARBIDE.

Electro.

2 lb. Cans—1½ in. size.....per can $0 35
10 lb. Cans—½ or 1 in. size..... " 1.50
2 lb. Cans—½ in. size, (24 cans in a case).....per case 7.50
10 lb. Cans—½ or 1 in. size, (6 in a case) per case..... 8.00
100 lb. Drums—Lump, sizes 3½×2 in., 2×½ in., 1¼×⅜ in. and ¼×⅛ in., per drum..... 9.00

1 in. carbide is prepared particularly for use in large automobile lamps, ½ in. for small auto and bicycle lamps.

CARBOLITE.



Superior Quality Calcium Carbide.

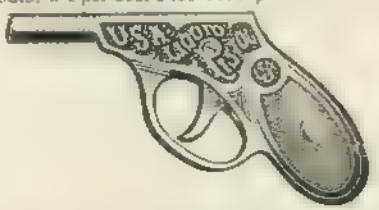
2 lb. Cans—½ in. size.....per can $0 35
10 lb. Cans—½ or 1 in. size..... " 1.50
2 lb. Cans—½ in. size (24 in a case) per case..... 7 50
10 lb. Cans—½ or 1 in. size, 6 in a case)..... per case 8 00
100 lb. Drums—Lump 3½×2 in., 2×1½ in., 1¼×⅜ in. and ¼×⅛ in. per drum..... 9 00

CARBIDE BURNERS.

No. 2—Fish tail flame, for lamps using large size lava tips. .....per dozen $1.50

LIQUID PISTOLS.

No. 5G—SOKUM, white metal, nickeled, recharges and fires by pressure on the bulb, w't per doz. 6 lbs ..... per dozen $3.00



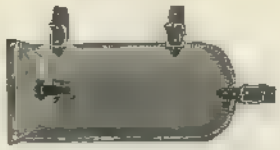
No. 1G—U. S. A., fires over 20 shots in one loading, fires and recharges by pulling trigger, polished nickel, 5 in. long, w't per doz. 6¼ lbs....per dozen $9.00

No. 2G—Rubber Holsters, for U. S. A. pistols, w't per doz. 1 lb.....per dozen 1.00

No. 3G—WIZARD, fires over 20 shots with one loading, polished nickeled metal, 5¼ in. long, w't. per doz. 7 lbs., per dozen.... ..... 9.00

ONE IN A BOX, ONE DOZEN IN A CARTON.

TOOL BAGS.



No. 8—Men's, oval, smooth leather, w't per doz. 2¾ lbs.....per dozen $3.60

No. 10G—Men's, round, pebble grain leather, patent fastening, w't per doz 1¾ lbs.....per dozen $4 80
No. 10P—Men's, round pebble split leather, otherwise same as No. 10G., per dozen. 4 20

Nos. 20G and 20P. Nos. 60P and 60G.

No. 20G—Men's, triangular, grain leather, patent fastening, w't per doz. 2¼ lbs., per dozen..... $7 20
No. 20P—Split leather, otherwise same as No 20G .....per dozen 3 40
No. 60P—Women's, triangular, pebble leather, patent fastening, w't per doz. 2 lbs.....per dozen 4.80
No. 60G—Women's, triangular, grain leather, patent fastening, w't per doz 2 lbs.....per dozen 7.80

TROUSER GUARDS.

No. 11.

No. 21.

No. 22.

No. 25.

No. 11—Corrugated, enameled steel, w't per doz. pairs ½ lb., per dozen pairs .. $0 40
No. 21—PERFECTION enameled steel, w't per doz. pairs ½ lb... per dozen pairs .30
No. 22—PERFECTION, cloth covered, steel, w't per doz. pairs ⅜ lb. per dozen pairs 1.10
No. 25—Combination guard and lock, nickel plated steel, w't per doz. pairs ¼ lb.....per dozen pairs 3 00

NOS. 11 TO 22, THREE DOZEN; NO. 25, ONE DOZEN IN A BOX

BICYCLE SADDLES.

No. 12 —Men's, truss spring wood base, felt padded, tan color grain leather, high back, 10¼×8 in., w't 1½ lbs., each $1.75

No. 14 —Men's, with C. G. universal spring, otherwise same as No. 12, w't 1⅞ lbs. ..... each 2.25

No. 17 —Men's, truss spring, wood base, felt padded, best tan color grain leather, 10×8¾ in., w't 1¼ lbs. each $2.25

No. 18 —Men's, with C. G. universal spring, otherwise same as No. 17, w't 2 lbs. ..... each 2.75

ONE IN A BOX.

REVONOC

No. 72 —Juvenile, truss spring, well padded, grain leather top, w't 1 lb. ..... each $1.00

No. 23 —Men's, truss spring wood base, padded, grain leather, 7¼×9¾ in., w't 1 lb. ..... each $1.20

No. 24 —Men's, truss spring, wood base, padded, tan color grain leather, 9¼×8¼ in., w't 1 lb. ..... each $1.25

ONE IN A BOX.

REVONOC

No. 24C — Men's, B. G. coil spring, wood base, well padded, tan color grain leather, 9¼×8¼ in., w't 1 lbs. ..... each $1.35

No. 25 — Women's, coil spring, wood base, padded, tan color grain leather, 8¼×7¼ in., w't 1½ lbs. each 1.35

No. 76 — Men's, truss spring, wood base, felt padded, tan color grain leather, 9½×8 in., w't 1 lb. ..... each $1.50

No. 6 — Women's, coil spring, wood base, felt padded, tan color grain leather, 9¼×8¼ in., w't 1½ lbs. each $1.60

ONE IN A BOX.

"CRUSO."

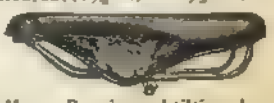
No. 15—Cruso, men's, truss spring wood base, well padded, good grade leather, 9¼×7½ in., w't 1⅞ lbs. ..... each $1.00

No. 16—Cruso, Women's, truss spring, wood base, well padded, good grade leather, 8¼×8¼ in., w't 1 lb. ..... each $1.25

ONE IN A BOX.

PERSON'S.

No. 100—Special, heavy single spring drop forged, universal clamp polished and plated, 11×7¾ in., w't 1½ lbs., each $2.25



No. 101—Model B, universal tilting clamp, unbreakable bolt, new tension adjustment has strap loops for tool bag, 11×7¾ in., w't 1¾ lbs. ..... each $2.50

No. 102—Royal, heavy twisted double wire spring, drop forged universal clamp, machine plated and polished, 11×7¾ in., w't 1½ lbs. ..... each $2.50

No. 103—Speedwell, special double spring, new clamp binding spring and saddle with 1 screw, 11×7¾ in., w't 1¼ lbs. ..... each $2.50

No. 104—Old Comfort, 4-wire spring containing 8 coils, universal clamp, most comfortable saddle made, 11×7¾ in., w't 2 lbs. ..... each $2.75

No. 105—Tourist, triple wire twisted spring with 4 coils, universal clamp, 11×7¾ in., w't 2¾ lbs. ..... each $3.00

No. 106—Roadster 4-wire spring with 8 coils, narrow concave pommel, best saddle for coaster brake bicycles, 9¼×8¼ in., w't 2¼ lbs. ..... each $3.00

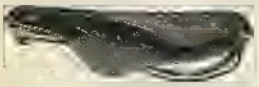
No. 300—Peerless, two nickeled cushion springs, large size, finest quality leather, 11×9 in., w't 3½ lbs. ..... each $5.00

No. 301—Maximas, two compound cushion nickeled springs, finest quality leather, heavy nickeled brace, 11×9 in., w't 4 lbs. ..... each $6.00

ONE IN A PACKAGE.

SADDLES, HANDLE BARS, SPRINGS, ETC.

TROXEL SADDLES.

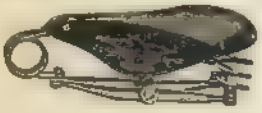


No. 200—RACER, men's, single wire frame enameled spring, imported leather 10¾×7¾ in., w't 1 lb.....each $2.00

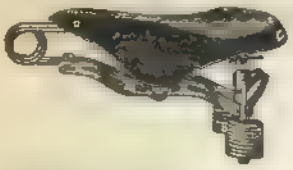
No. 201—SPECIAL, men's, enameled double truss springs, universal clamp, imported leather, 10¾×7¾ in., w't 1½ lbs.....each $2.50

No. 202—ROADSTER, men's, enameled single wire truss springs, spiral coil in rear, nose coil in front, high grade leather, 10¾×7¾ in., w't 2 lbs...each $2.75

No. 203—LEADER, men's, four wire frame, universal clamp, finest selected leather, 10¾×8¾ in., w't 1¾ lbs..each $3.00



No. 204—EMPIRE, men's, enameled double truss wire springs, spiral coil in rear, nose coil in front, universal clamp finest leather, 10¾×8¾ in., w't 2¾ lbs.....each $3.50



No. 205—IMAX, men's, truss cushion springs, spiral coil in rear, nose coil in front, universal clamp, imported leather, 12×10½ in., w't 11½ lbs.....each $6.75

SEAT POSTS.

No. 74X—Forward L, with expander, nickel plated, ⅞ in., w't per doz. 7½ lbs per dozen ... $6.00

SADDLE CLAMPS.

No. 5G.

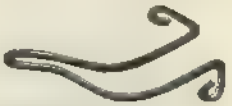
No. 7G.

No. 5G—Nickel plated forged steel, w't per doz. 1 lb.....per dozen $1.50

No. 7G—CHALFANT, direct, nickel plated and polished, for wire, for 1 or 1¼ in. tubing, w't per doz. 4 lbs....per dozen 5.50

HALF DOZEN IN A BOX.

SADDLE SPRINGS.



No. AG—Plain, nickel plated and polished, w't per doz. 4 lbs.. per dozen $1.80

No. BG—Coil, nickel plated and polished, w't per doz. 6½ lbs.....per dozen $2.40

No. CG—UNIVERSAL, adjustable to fit any saddle, w't per doz. 16 lbs....per dozen $3.00

No. EG—Esco, consists of three round coil springs with all necessary bolts nuts and washers, nickel plated, w't per doz. sets 9 lbs per dozen sets $3.60

LOOSE.

HANDLE BARS.

No. 458X—Schinneer pattern, improved adjustable expander, with improved adjusting clamp, ⅞ in. stem, 19 in. wide, *without* grips, w't 1½ lbs.. each $1.20

No. 758X—Juvenile, 16 in. wide, otherwise same as No. 458X, w't 1¼ lbs., each .75

No. 45—Stems, for Nos. 458X and 758X diam. ⅞ in., with expander w't 10 oz. ..... each .45

No. 658X—Schinneer pattern, improved adjustable clamp, with expander, ⅞ in. stem, 19 in. wide, 2½ in. forward extension, *without* grips, w't 1¾ lbs..each $1.60

No. 65—Stems, for the above, diam. ⅞ in., with expander, w't 14 oz..each .85

ONE IN A PACKAGE.

HANDLE BARS.

No. 858X—California pattern ⅞ in. stem, 22 in. wide 4 in. drop 1½ in. forward bend 2½ in. forward extension, *without* grips, w't 2 lbs.....each $2.00

No. 608X.

No. 618X.

Kelly Adjustable.

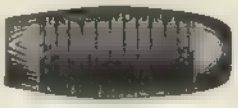
No. 608X—⅞ in. stem, 18 in. wide, 1 in. extension, with expander, *without* grips w't 1⅞ lbs each $2.25

No. 618X—⅞ in. stem, 18 in. wide, 2½ in. extension, with expander *without* grips w't 2 lbs each 2.50

The extreme width from outside to outside when grips are fastened to handle bar is 19 in.

ONE IN A PACKAGE

HAND GRIPS.



No. 26

Leather Body.

No. 24—⅞ in., plain wood cap and ferrule, w't per doz. pairs 1½ lbs., per dozen pairs..... $1.80

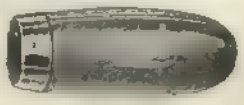
No. 26—⅞ in., cherry stained wood cap and ferrule, w't per doz. pairs 1½ lbs per dozen pairs..... 2.00

ONE DOZEN PAIRS IN A BOX.

Leather Body.

No. 27—⅞ in., cherry stained wood cap and nickel plated ferrule, w't per doz. pairs 1¾ lbs..... per dozen pairs $2.50

ONE DOZEN PAIRS IN A BOX.



All Leather.

No. 29—⅞ in., sewed grain leather, nickel plated ferrule, w't per doz. pairs 1½ lbs per dozen pairs..... $1.50

ONE DOZEN PAIRS IN A BOX.

BOATS.

LIFE-SAVING FOLDING.

Folding boats have for some time been used by the sporting fraternity, but it was not until quite recently that it has been possible to secure boats of sufficient strength as to make them adaptable to practicable purposes and at the same time having the lightness and buoyancy necessary for boats of this character.

The Life-Saving Folding Canvas Boat is constructed on lines which make it very strong, durable and buoyant. The carrying capacity for its size is wonderful.

The framework is made of the best high carbon-tempered spring steel. All metal parts are galvanized and will not rust when used in either salt or fresh water. No tools are necessary to set up or take down. The steel frame of the boat makes it stiff and rigid so that the seat and spreaders may be left out at any time and the boat will keep its perfect shape

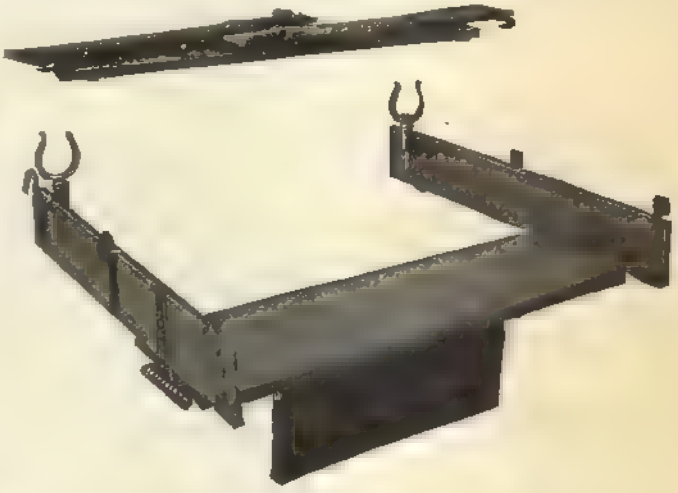
These boats are made of one piece of the best 22 or 24 oz. hard woven duck, made expressly for this purpose. Each end being of double thickness and covered on the outside by a third piece, which fully covers the end and runs back well along the bottom to protect it from possible wear. There is no more danger of puncturing than there is in a wooden boat.

The combination keel and bottom is perfectly flat, rigid and smooth, cannot warp nor get out of order. It is the same as one solid piece when placed in the boat, and has sufficient strength to prevent the boat from springing up at the ends when loaded in the center, or springing up in the center when loaded at the ends.

The boat is as easy to set up in the dark as in the light, because there is nothing to get lost. No bolts, nuts or cotter pins. All the cross ribs are fastened to a strong strap and therefore none of them can get misplaced. It is never necessary to stop and sort out the ribs; they cannot be put on wrong. This is one of the strong features of the boat.

They are used as duck boats and are also used by the U. S. Navy as yacht tenders. Each boat is equipped with the life-saving air chambers. We furnish no boats without them

In the illustration of the combination thwart seat, spreaders and oar locks, the view at the top of the cut shows the seat folded. The one at the bottom shows the seat opened as it sets in the boat. The seat support rests on the bottom of the boat, and the oar beds are hinged to the bottom side of the seat, and when turned up can only go to a right angle. This makes the whole combination very rigid and gives great strength to the boat. The seat can be moved to different places in the boat, and folds compactly without moving a screw or a bolt.



Combination Thwart Seat, Spreaders and Oar Locks.

No. 9—Length 9 ft., 32 in. beam, 10 in. deep, 16 in. at ends, with jointed oars or double paddle, carrying case, thwart seat and spreaders, air chambers, capacity 350 lbs., package is 3 ft. by 8 in., w't 30 lbs., - - - - - - - - - - each $37.50

No. 12 Regular, length 12 ft., 37 in. beam, 12 in. deep, 20 in. at ends, with jointed oars or double paddles, carrying case, thwart seat and spreaders, air chambers and camp chair, capacity 700 lbs., package is 4 ft. by 9 in., by 11 in., w't 55 lbs., - - each 49.50

No. 14—Regular, length 14 ft., 38 in. beam, 13 in. deep, 22 in. at ends, with jointed oars or double paddles, carrying case, thwart seat and spreaders, air chambers and camp chair, capacity 1,000 lbs., package is 5 ft. by 9 in. by 12 in., w't 60 lbs., - - each 55 50

No. 16—Regular, length 16 ft., 45 in. beam, 16 in. deep, 24 in. at ends, with jointed oars or double paddles, carrying case, thwart seat and spreaders, air chambers, one 5 ft. single paddle and two camp chairs, capacity 1600 lbs., package is 5 ft. by 9 in. by 12 in., w't 80 lbs., - - - - - - - - - - - - - - - - - - - each 70.50

No. 18—Regular, length 18 ft., 52 in. beam, 18 in. deep, 28 in. at ends, with jointed oars or double paddles, thwart seat and spreaders, carrying case, air chambers, one 5 ft. single paddle and two camp chairs, capacity 2,200 lbs., package is 6 ft. by 12 in. by 16 in., w't 90 lbs., - - - - - - - - - - - - - - - - - - - each 82.50

No. 20 Regular, length 20 ft., 60 in. beam, 20 in deep, 32 in. at ends, package is 7 ft. by 12 in. by 20 in., capacity 3,000 lbs., otherwise same as No. 18, w't 120 lbs., - - - - - - - - - - - - - - - - each 97.50

EXTRA PARTS.

Oars —Spruce, 6 ft. long, copper tipped and jointed, - - - - - - - - - - - - per pair $6.00

Paddles —Single, spruce, 5 ft. long, - - - - - - - - - - - - - - - - each 4 50

Paddles —Genuine Indian, 5 ft. long, - - - - - - - - - - - - - - - - " 4.12

Paddles —Double folding, - - - - - - - - - - - - - - - - - - " 6.75

Seats —Folding back, and leg rest, - - - - - - - - - - - - - - - - " 2.25

Waterproofing—Per gallon, - - - - - - - - - - - - - - - - - - - 3.00

Cabin Ends.

Length of boat, - - -	**9**	**12**	**14**	**16**	**18**	**20 ft.**
Each, - - - - - -	$4.50	6.74	7.50	9.00	9.75	10.50

Tent Tops—For 14 ft. boats, - - - - - - - - - - - - - - - - - - each $22.50

Tent Tops—For 16 ft. boats, - - - - - - - - - - - - - - - - - - " 27.00

Cabins —To cover whole boat, in three sections, - - - - - - - - - - - - 3 times price of one end

Combing —For duck or sail boats, - - - - - - - - - - - - - - - - - per foot .45

Decking —For duck boats depends on width of boat, prices w'l be furnished on application.

OARS, OAR LOCKS, ANCHORS AND WATER WINGS.

PLAIN OARS.

Northern Fir, Very Light and Strong, Straight Grain, Reinforced Blade.

No. 40—Length	6	6½	7	7½	8 ft.
Per pair	$1 92	2 08	2 24	2.40	2.56

White Ash, Selected Straight Grain, Reinforced Blade.

No. 55—Length	6	6½	7	7½	8 ft.
Per pair	$2.00	2 16	2.32	2.48	2.64

AVERAGE WEIGHT PER PAIR 6½ LBS.

COPPER TIPPED OARS.

Northern Fir, Very Strong and Light, Straight Grain, Reinforced Blade

No. 45—Length	6	6½	7	7½	8 ft.
Per pair	$2 04	2 20	2 40	2 56	2.72

White Ash, Selected Straight Grain, Reinforced Blade.

No. 75—Length	6	6½	7	7½	8	8½ ft.
Per pair	$2.12	2 32	2 40	2 64	2 80	2 92

Spruce, Selected Material, Straight Blade.

No. 89—Length		6½	7	7½	8 ft.
Per pair	$2 60	2.80	3.00	3 20	

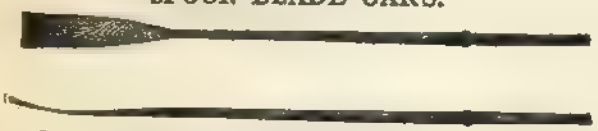
AVERAGE WEIGHT PER PAIR 6½ LBS.

Spruce, Straight Blade, Selected Material, Finished with Spar Varnish and Leather Collar.

No. 90 Length	7	7½	8 ft.
Per pair	$4 64	4 96	5.28

AVERAGE WEIGHT PER PAIR 7 LBS

SPOON BLADE OARS.



Spruce, Selected White Material, Copper Tipped, Leather Oar Lock Shields, Finished with Best Spar Varnish.

No. 111—Length	7	7½	8 ft.
Per pair	$5 88	6 32	6.72

AVERAGE WEIGHT PER PAIR 7 LBS

CANOE PADDLES.

Spruce, Plain Tip, Selected Material, Finished in Oil.

No. 80—Length	4½	5	5½	6 ft.
Per dozen	$27 00	27.00	27 00	27 00

AVERAGE WEIGHT PER DOZEN 18 LBS.

PUSH PADDLES.

White Ash, Plain Tip, Selected Straight Grain.

No. 85—Length	8	9	10 ft.
Each	$2 16	2 41	2.70

AVERAGE WEIGHT EACH 3¾ LBS.

OAR LOCKS.

Nos. 11 to 1½.

No. 11—Socket, plain malleable iron, 2⅛ in. opening, 2½ in. center, w't per doz. prs. 25 lbs. . . . . per dozen pairs $2 88

No. 11½—Socket, plain malleable iron, 2¼ in. opening, 3 in. center, w't per doz. prs. 24 lbs. per dozen pairs 3.12

No. 0—Socket, galvanized malleable iron, 1⅝ in. opening, 2⅛ in. center, w't per doz. prs. 12 lbs. . . . . per dozen pairs 3.24

No. 1—Socket, galvanized malleable iron, 2⅛ in. opening, 2½ in. center, w't per doz. prs. 15 lbs. . . . . per dozen pairs 3 24

No. 1½—Socket, galvanized malleable iron, 2¼ in. opening, 3 in. center, w't per doz. prs. 24 lbs. . . . . per dozen pairs 4.92

OAR LOCKS.

No 7. No 8 No. 21 Nos. 40 and 41

No. 7—North River galvanized malleable iron, with plate and pin, 2 in. opening, w't per doz. prs. 18 lbs. . . . . per dozen pairs $3.48

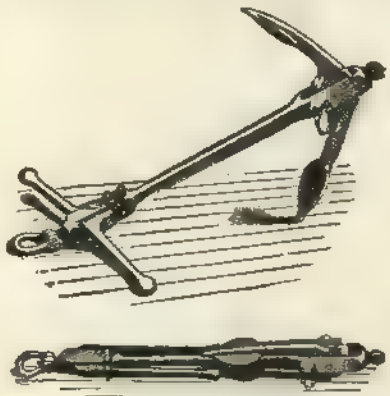
No. 8—Round socket galvanized malleable iron, with plate, 2¼ in. hole, w't per doz. prs. 18 lbs. . . . . per dozen pairs 3.24

No. 21—Moline, plain malleable iron, with side plate, 1⅝ in. opening, 2¼ in. center, w't per doz. prs. 2½ lbs. . . . . per dozen pairs 4.92

No. 40—Patent swivel, galvanized malleable iron, 1¾ in. opening, 2¼ in. center, w't per doz. prs. 2 lbs. . . . . per dozen pairs 12 60

No. 41—Patent swivel, galvanized malleable iron, 2 in. opening, 2½ in. center, w't per doz. prs. 52½ lbs. . . . . per dozen pairs 14.40

DERIGO FOLDING ANCHORS.



Pounds	4	6	8	10	12	16	20
Length	17	19	22	23	25	28	30 in.
Each	$2 40	2 90	3 80	4 80	5 70	6 70	8.60

Pounds, 26 and up . . . . . per pound $0 40

KEDGE ANCHORS.

Pounds	4	5	6	7	8
Black	each $				
Galvanized	"				
Pounds	10	12	14	16	18
Black	each $				
Galvanized	"				
Pounds	25 to 100			105 to 300	
Black	per pound $				
Galvanized	"				

WRITE FOR PRICES ON ANCHORS

WATER WINGS.

No. 1—Ayvad's, plain . . . . . per doz. $4.30

No. 2—Ayvad's, variegated colors, better quality and finish than No 1 . . . . . per doz. 5 60

Easily adjusted; a good pocket life preserver, great sport in the water Can be brought instantly into use, with them any one can swim or float. Supports from 50 to 250 pounds Weighs three ounces and takes no more room than a pocket handkerchief A great help for those who wish to learn to swim, and fun for all competent swimmers.

AUTOMOBILE SUNDRIES.

AUTO CLOCKS.

No. 12G—NEW ORMAND, 3 in. porcelain dial, heavy brass dust proof case, large black distinct numerals, runs 8 days with one winding, height 4 in., width 4 in., w't 2 lbs.....each $8.00

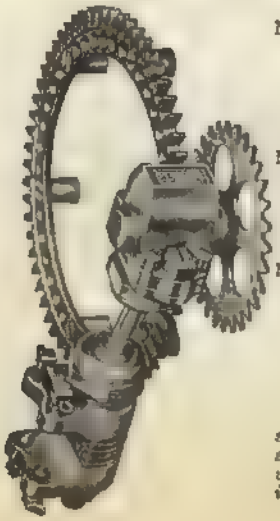
No. 11G—SAVANNAH, 3 in. porcelain dial, heavy brass case, so constructed that no keys or levers are on any part of the front or side of the case, large black distinct figures, runs 8 days with one winding height 4⅛ in., width 4⅛ in. w't 2½ lbs.....each $9.00

To wind the above clocks, the water-tight bezel is unscrewed and when replaced the case is free from keys or levers, giving the clock an absolutely plain, smooth surface.

When a car is in motion, it will not affect these clocks, as they are made to withstand the shocks and jars to which they are subjected.

ONE IN A BOX.

ODOMETERS.



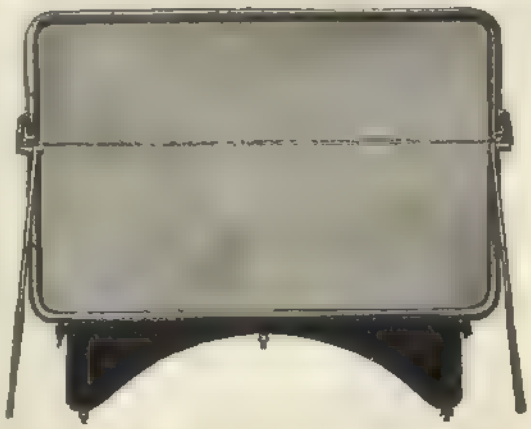
No. 17—VEEDER, regular for horse drawn vehicles, and very light automobile runabouts, w't 7½ oz., each $3 50

No. 18A—VEEDER, with star wheel and striker instead of spur gear, w't 10 oz., each..... $7 00

No. 18B—VEEDER, with spur gear, absolutely dust and waterproof, for high speed automobiles, w't 10 oz. each $10.00

When ordering, be sure to specify the size of wheel for which the odometer is wanted.

FOLDING WIND SHIELDS.



Automatic.

No. 10—40 in. wide.....each $35.00
No. 11—44 in. wide..... " 37.50

Fitting in pieces extra according to model of the car.

This Wind Shield is now the most popular in the market. It is the only folding wind shield that is automatically opened or closed, or that can be operated by the driver with one hand without stopping the car.

There are no bolts or nuts to adjust—taking down or putting up is all done by a double spring action—patented.

This is a tempered phosphor bronze spring which absolutely prevents the rattling of the glass. No other wind shield has this "anti-rattle" device.

The Automatic Wind Shield is made entirely of brass and plate glass, and makes a very attractive addition to any car. The frame is special shape brass tubing thereby reducing weight to the minimum. The supporting bars telescope into each other, making it possible to lengthen or shorten them without sawing off the ends.

Perfect.

No. 5—For runabouts 39 in. wide, 31 in. high.....each $25 00
No. 6—For touring cars, 43 in. wide, 35 in. high..... each 25 00

Solid mahogany frame, brass bound edges, cherry finish, two pieces. French plate glass, polished brass trimmings throughout.

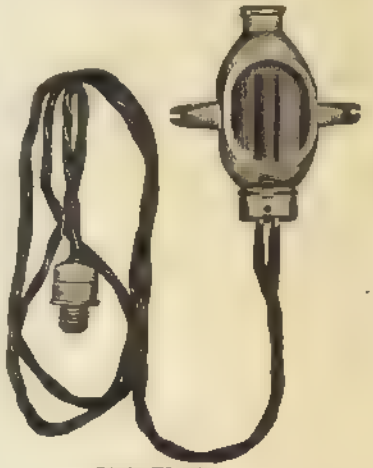
The catch is novel and positive, shield can be lowered or raised by the driver while the car is in motion. Simple in construction, and will not rattle.

TOP RESTS.

No. 25—HENDERSON, 10 in. long, made of ⅛ in. cold rolled steel, heavily enameled in black, lined with high grade soft black felt.....per pair $2 50

Applicable to either carriages or automobiles, will catch the top when in a folded position. Prevents the bows of the top when folded up from bending or breaking, also from jarring and rocking sidewise.

VULCANIZERS.



Little Wonder.

No. 1—Regular iron outfit, any size, complete.....each $ 6.00
No. 2—Regular aluminum outfit, any size, complete.....each 7 00
No. 3—Electric heater outfit, iron, complete.....each 11.00
No. 4 Electric heater outfit, aluminum, complete.....each 12 00

Gives no smoke, no trouble, but does give perfect control. Can be used on any 110 volt lamp socket direct or alternating current. Complete with attaching plug, and equipped with the Hubbell detachable plug and new code lamp cord.

INNER TUBE BRACKETS.

Little Wonder.

No. 5—Inner tube bracket and flat surface plate, iron.....each $2 00
No. 6—Inner tube bracket and flat surface plate, aluminum.....each 2 50

Parts For the Above.

Little Wonder Cement	per can	$0.25
Para Rubber, 80 gauge	per foot	2.00
Para Rubber, 40 gauge	"	1.25
Vapor Lamp Heaters	each	.50
Thermometers	"	1.00
Electric Heater, complete	"	5.00
Single Friction Canvas	per foot	.50
Double Friction Canvas	"	.75

STEWART SPEEDOMETERS.

Stewart Speedometers are recognized the world over as the standard in speedometer construction. They combine features of workmanship, material, construction, equipment and performnace that have never been equaled by any speed indicator at any price.

Other features that make Stewart speedometers superior to all others are indisputable accuracy, the non-vibrating non-fluctuating pointer, the evenly spaced scale, instantaneous indication of every change of speed.

Equipment.—All models, irrespective of price, have the same high quality equipment of flexible shaft, swivel joint and gears, features responsible for the elimination of all shaft troubles

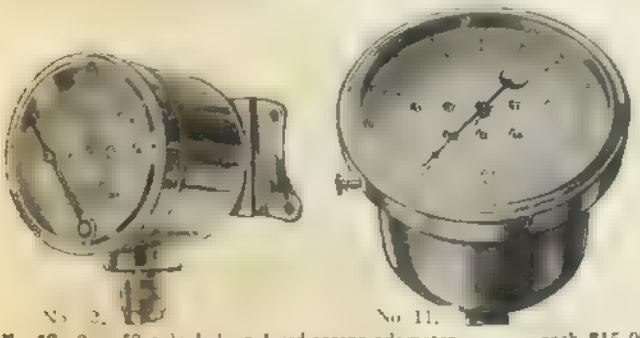
The core in the Stewart Flexible Shaft consists of a number of file-hard units, hooked together into a chain which revolves in a tube formed by coiling a flat, hardened and tempered steel ribbon, the inside surface of which presents a hard, smooth, cylindrical bearing for the core, the whole enclosed with a protecting and ornamental casing of brass This construction insures a shaft that has sufficient stiffness to absolutely prevent short bends—by far the costliest construction used by any speedometer manufacturer, but absolutely certain to give the longest service and the least trouble

The Swivel Joint.

The Stewart Swivel Joint.—Of all the refinements and improvements in speedometer construction, there is probably no one feature that has brought speedometers nearer the ideal than the unique Stewart swivel joint, conceded to be the greatest advancement—the one thing most needed. It makes perfect what was granted to be the weakest point in the equipment of a speed indicator.

Before the advent of this swivel, the flexible shaft was usually carried down the dash and then bent at a right angle, passing through the springs to the front right wheel. The sharp bend caused the shaft to crystallize and break, or the car jolting over rough ground, would compress the springs and crush the shaft. The Stewart swivel joint obviates the right angle bend allowing the shaft to be carried directly from steering arm clamp to the dash along the frame of the car without passing through the springs—a method still followed in some other constructions

This small, compact internally locked swivel is not to be confounded with the bulky, clumsy and complicated non-swivel devices now being used to meet the demand that this unique swivel has created and which protect users of speedometers against the shaft breakages and annoyances caused under the old method of installation


No. 3. No. 11.

No. 12—3 in. 50-mile dial, enclosed season odometer . . . . each $15 00

This model is exactly the same instrument sold last season as the American at $25, excepting that it is made with a 3 in dial. There is no cheapening in any feature, the workmanship and quality are the same: the construction has even been improved.

Will indicate speed as high as fifty miles per hour, and is equipped with an enclosed season odometer with capacity of 10,000 miles and repeat.

No. 11—4 in. 60-mile dial, enclosed season odometer and automatic resetting trip register. . . . . each $ 5 01

Something entirely new in speedometer construction; an instrument that is to be the most popular of the 1909 season. It will indicate speed from 0 to 60 miles. The regular Stewart models do not indicate speed less than five miles per hour, but to meet any demand they have provided in this model a means of indicating the slowest turn of the wheel. The needle, or hand, acts from the center of the dial, which arrangement permits the use of a scale three times as long as used on ordinary speedometers, making it the most easily read indicator on the market.

No. 4. No. 5.

No. 4—4 in. 60-mile dial, enclosed season odometer and automatic resetting trip register, and maximum speed hand . . . each $40.00

This speedometer indicates speed up to 60 miles. The scale is evenly spaced, making it possible to read the speed without confusion, and is equipped with enclosed season odometer and trip register, which records the mileage up to 10,000 miles and repeats.

The maximum speed hand is carried forward by the speed indicator hand and may be reset by means of a push button, with no possibility of derangement, nor placing additional strain on the indicating mechanism.

No. 5—4 in. 90-mile dial, enclosed season odometer and automatic resetting trip register, and maximum speed hand . . . each $50 00

In every feature a duplicate of the No. 4, as described above, except that it is made to indicate speed as high as 90 miles. This is an exceptionally handsome instrument and is very popular for use on high powered cars.

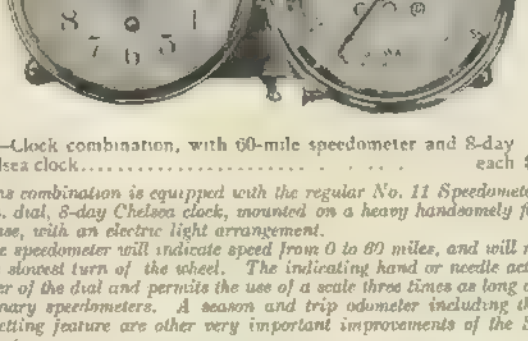
No 10—Clock combination, with 60-mile speedometer and 8-day Chelsea clock. . . . . each $60 00

This combination is equipped with the regular No. 11 Speedometer, and the 4 in. dial, 8-day Chelsea clock, mounted on a heavy handsomely finished brass base, with an electric light arrangement.

The speedometer will indicate speed from 0 to 60 miles, and will register even the slowest turn of the wheel. The indicating hand or needle acts from the center of the dial and permits the use of a scale three times as long as used on ordinary speedometers. A season and trip odometer including the new trip resetting feature are other very important improvements of the Stewart speedometers.

The clock is the best on the market for use on automobiles, as it is built to withstand the jolting and jarring to which it is subjected.

The combination also includes an electric light arrangement encased in a brass tube or post in the center of the instrument so as to throw equal light on both the clock and the speedometer at the same time, and is complete with wires and switch


No. 9 [illegible] combination 60-mile speedometer and 8-day Chelsea clock each $75 00

The most attractive automobile accessory ever offered the motoring public. Comprising a 4-in. seven-jewel Chelsea clock and No. 4 Stewart speedometer, mounted on a beautifully finished brass base equipped with a brass post containing an electric light. The outfit is complete with electric wire and switch, by means of which the light may be turned on or off as required.

The name "Chelsea" speaks for quality of the clock portion of this combination, Chelsea clocks are the very best the market affords for automobile use—the severest test to which a clock mechanism could be put

The speedometer used is the regular Stewart 60-mile model, exactly the same instrument as supplied if speedometer were ordered alone. The base is of brass, finished to match clock and speedometer. Between the two a post is stepped, somewhat higher than the instrument, with two openings, so arranged that the light from a concealed electric globe will shine on both speedometer and clock. Under the base of the combination is installed a switch completely wired, ready to attach to dry batteries.

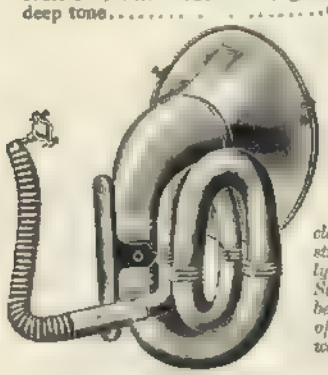
WHEN ORDERING, STATE NAME AND MODEL OF CAR, ALSO DIAMETER OF TIRE ON FRONT WHEEL. GUARANTEED ABSOLUTELY FOR FIVE YEARS.

AUTOMOBILE HORNS AND PARTS.

Polished Brass.

No. 4—3½ in. bell, length 9¾ in....each $1 60
No. 6—4½ in. bell, length 12 in.... " 2 00
No. 8—5 in. bell, length 13 in.... " 2 25
No. 10—6 in. bell, length 14¾ in.. " 3 00

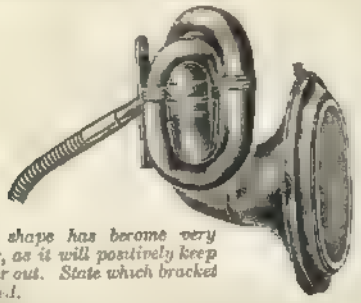
No. 726—Bull Frog, 4¼ in. polished brass bell, with double coil, giving a deep tone.....each $3 00



With a close bent coil, straight or lyre bracket. State size of bell and style of bracket wanted.

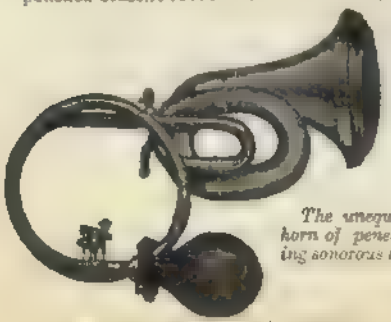
Polished Brass.

No. 707 New Dragon, 6¼ in. bell..each $6 75
No. 708—New Dragon, 7 in. bell.. " 7 00



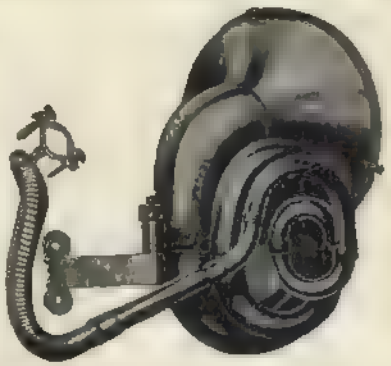
This shape has become very popular, as it will positively keep the water out. State which bracket is wanted.

No. 709 7 in. oval bell, reversed coil with bell down, straight or lyre bracket, polished brass.....each $7.25



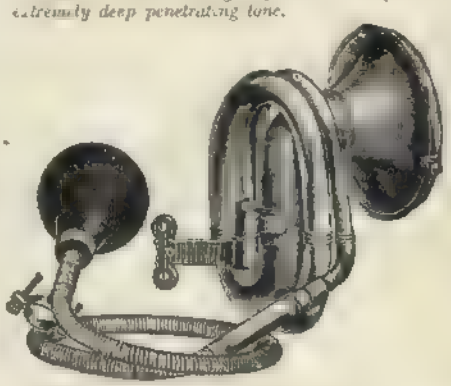
The unequaled horn of penetrating sonorous tone

No. 703—Sonoro, 7 in. bell, polished brass.....each $8 00



No. 705—Large Dragon, 8¼ in. bell, screen, 50 in. flexible tubing, swivel bracket, polished brass, each $9 00

The above horn can be adjusted to any side and can be attached to any car, and is noted for its extremely deep penetrating tone.



No. 704—Bull Frog, 7 in. bell, screen 50 in. tube, swivel bracket, polished brass, each $9 25

The new fad in automobile horns, which has met with the favor of all the touring car manufacturers, when a long powerful blast is required. This horn can be heard at a distance of half a mile.

Polished Brass.

No. 701—Consone, small size, 6¼ in. bell.....each $6 50
No. 702—Consone, large size, 8 in. bell, each.....$8 00

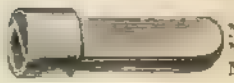
The most powerful toned horn. The only successful high class horn made in America.

Bulbs, chemically cured, soft, pliable and tough. Non-corrosive vibratory metal composition, reeds which are not affected by the weather.

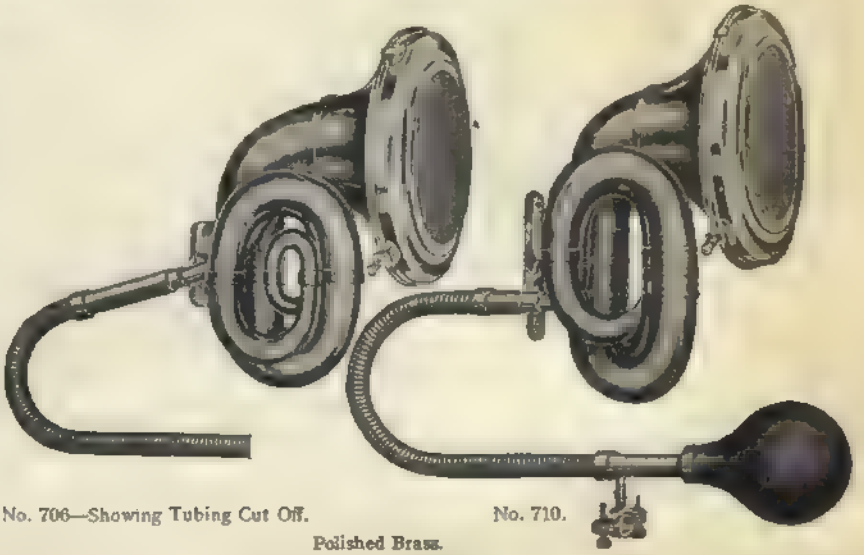
RUBBER HORN BULBS.

	EACH.
No. 1—1⅞ in.	$0.30
No. 2—2⅛ in.	35
No. 3—2⅜ in.	.40
No. 4—2½ in.	.45
No. 5—2¾ in.	50
No. 6—2⅞ in.	60
No. 7—3 in.	70
No. 8—3¼ in.	80
No. 9—3½ in.	90

HORN REEDS.



	EACH
No. 1 Small	$0 15
No. 3—Large	30
No. 2—Medium	35



No. 706—Showing Tubing Cut Off. No. 710.

Polished Brass.

No. 706—8 in. oval bell, triple twisted, straight or lyre bracket, very deep penetrating tone.....each $ 9 00

This horn leads all others and is the Champion in the market.

No. 710—Extra large 8 in. oval bell.....each 10.50
No. 711 7 in. oval bell.....each 7 25

No 711—Same style as No 710, but smaller in proportion. Straight or lyre bracket. State which bracket is wanted when ordering

TALKING MACHINES.

This low priced machine makes a rare bargain in a handsome up-to-date talking machine. It has an attractive hard wood case, new aluminum tone-arm with the latest style of sound-box. The floral horn can be swung in any direction. The motor is first class, and will work smoothly and almost noiselessly

Cabinet—Quarter sawed oak, highly polished, 10-inch base, height 6 inches

Turntable—10-inch, with gilded edge, covered with green felt

Motor—Spring, can be wound while running

Horn—Black enamel with gold bands, 21 inches long with 18-inch bell

Sound-Box—Improved type attached to swinging taper tone-arm

Taper Tone-Arm—Aluminum, resists echo

No. 10—FULTON, w't 23 lbs..... each $27 00

This is a high class machine in every respect. The woodwork is very pleasing in design and exceptionally well finished. The motor is the very best quality, carefully tested, has latest made sound-box, and fine floral horn

Cabinet—Golden oak, highly polished 14½-inch base, height 7¾ inches

Turntable—10-inch with polished edge covered with green felt.

Motor—Universal, with two springs which can be wound while running.

Horn—Finished in black and gold, 17 inches long, with 10½-inch bell.

Sound-Box—Improved type attached to swinging taper tone-arm.

Taper Tone-Arm—Finished in black enamel. Swing arm and elbow highly nickeled

No. 40—CLIMAX, complete with 100 needles and needle box, w't 29 lbs..... each $48.00

This attractive talking machine is made of hard wood well finished, and presents a good appearance. The motor is especially well made, and will run absolutely uniform in speed necessary to obtain the best results Machine has the very best quality of sound-box, fine floral horn, and is first class in every respect

Cabinet—Golden oak, highly polished, 12-inch base, height 7½ inches.

Turntable—10-inch with polished edge covered with green felt

Motor—Universal, with two springs which can be wound while running.

Horn—Finished in black and gold, 17 inches long with 19½-inch bell. Horn swings in any direction

Sound-Box—Improved type attached to swinging taper tone-arm.

Taper Tone-Arm—Finished in black enamel. Swing arm and elbow highly nickeled.

No. 26—CLIMAX, complete with 100 needles and needle box, w't 23 lbs . . . . . each $30.00

This machine is unexcelled by any talking machine made. The motor has three springs, avoiding the necessity of frequent winding. All the parts are very carefully fitted and finished. It also has the latest made sound-box which reproduces all of the notes on the scale with accuracy and distinctness. The wood horn entirely eliminates the metallic tones and adds much to the beauty of the machine The cabinet is made in a design obtainable only in high class woodwork, and has a piano finish.

Cabinet—Mahogany, highly polished, 15½-inch base, height 7¾ inches.

Turntable—10-inch with polished edge covered with green felt.

Motor—Universal, with three springs which can be wound while running

Horn—Wood, Mahogany finished, 19½ inches long, with 22-inch bell.

Sound-Box—Improved type attached to swinging taper tone-arm.

Taper Tone-Arm—Finished in black enamel. Swing arm and elbow highly nickeled.

No. 55—CLIMAX, complete with 100 needles and needle box, w't 29 lbs..... each $65 00

TALKING MACHINES.

FOR ILLUSTRATIONS SEE PAGE 2263.

Climax Talking Machines embody every feature that has made possible the talking machine as it exists to-day. The ideal ever-ready, all-around musical instrument and entertainer as distinguished from the interesting toy which, a few years ago, was all that it could claim to be.

It plays not only Climax Double-Disc records, but all other disc records made.

The Climax Talking Machine is perfect musically and mechanically. Whatever is in the record the Climax Talking Machine will bring out of it—from the simplest band music to the most difficult renditions of the great operatic artists.

In a talking machine reproduction everything depends on absolute uniformity of speed. Only a mechanical expert could, upon mere examination of the construction, fully appreciate the certainty and accuracy of the Climax motor and the simplicity of the whole device. But the effect of this motor-efficiency is evident to any one who will take the trouble to watch a Climax talking machine in operation—not only listening to the music and noting the entire absence of any waviness in the reproduction, but also when the machine is running without a record on the turntable, noting the silence and smoothness of its revolutions.

The Climax reproducer is a perfect device for reproducing record-sound waves. Nothing gets away—no tone is too heavy to be taken up by its diaphragm and no top note of violin or high soprano is too delicate to be transmitted through its sensitive record-arm and thrown out in magnified volume through the horn.

REVOLVERS AND PISTOLS.

COLT'S SINGLE ACTION, ARMY OR FRONTIER REVOLVERS.

Center Fire, Six Shots, Rubber Stock, Blued Finish.

	EACH
No. 8132S—32 cal., 4¾ in. bbl., w't 41 oz	$16 00
No. 8132M—32 cal., 5½ in bbl., w t 42 oz	16 00
No. 8132 L—32 cal., 7½ in bbl., w't 42 oz	16.00
No. 8138S—38 cal., 4¾ in bbl., w t 38 oz	16 00
No. 8138M—38 cal., 5½ in bbl., w't 39 oz	16 00
No. 8141S—41 cal., 4¾ in. bbl., w t 38 oz	16 00
No. 8141M—41 cal., 5½ in bbl., w't 39 oz	16 00
No. 8144S—44 cal., 4¾ in. bbl w't 37 oz	16 00
No. 8144M—44 cal., 5½ in. bbl., w't 38 oz	16.00
No. 8145S—45 cal., 4¾ in bbl., w't 36 oz	16 00
No. 8145M—45 cal., 5½ in bbl, w't 37 oz	16 00

Use 32-20, 38-40, 41 short, 41 long Colt, 44-40 and 45 Colt cartridges.

These revolvers should be carried with the hammer resting in the safety notch. For over half a century this arm has seen more actual service and more of them have been produced than any revolver ever manufactured. The "Single Action" is still in demand by users of firearms who require a combination of reliability, durability and simplicity in mechanism.

COLT'S BISLEY MODEL, SINGLE ACTION REVOLVERS.

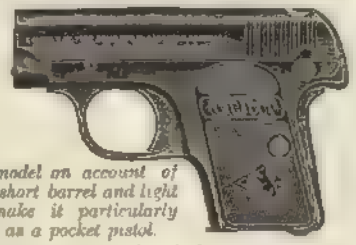
Center Fire, Six Shots, Rubber Stock, Blued Finish.

	EACH.
No. 8232SB—32-20 cal., 4¾ in. bbl., w't 44 oz	$16.00
No. 8232MB—32-20 cal., 5½ in. bbl., w't 45 oz	16.00
No. 8232LB—32-20 cal., 7½ in. bbl., w't 47 oz	16.00
No 8238SB—38-40 cal., 4¾ in bbl. w't 42 oz	16 00
No. 8238MB—38-40 cal., 5½ in bbl., w't 43 oz	16 00
No. 8241SB—41 cal., 4¾ in bbl., w't 42 oz	16 00
No 8244SB—44-40 cal., 4¾ in. bbl., w t 39 oz	16 00
No. 8245SB—45 Colt's, 4¾ in. bbl., w't 38 oz	16 00

Use 32-20, 38-40, 41 short, 41 long Colt, 44-40 and 45 Colt Cartridges.

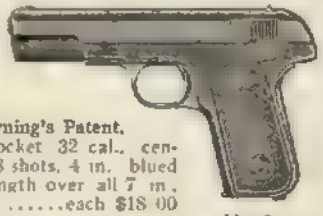
These revolvers should be carried with the hammer resting in the safety notch. This revolver is of the Single Action Army type, with low hammer, longer and firmer grip, very light and smooth in pull.

COLT'S AUTOMATIC PISTOLS.



This model on account of its very short barrel and light weight make it particularly desirable as a pocket pistol.

No. C1—Pocket, 25 cal., rimless cartridges 6 shots, 2 in. bbl. length over all 4½ in., blued finish, w't 13 oz. each $14.00



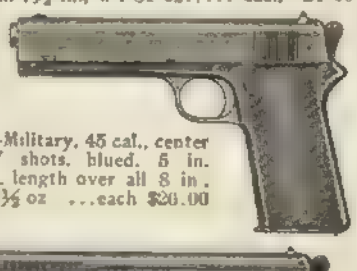
No. 6.

Browning's Patent.

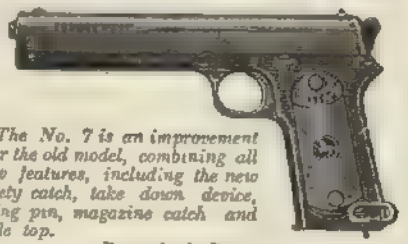
No. 6—Pocket 32 cal., center fire, 8 shots, 4 in. blued barrel length over all 7 in., w't 23 oz ..... each $18 00

No. 380—Pocket, 380 cal., center fire rimless smokeless cartridges, 7 shots, 3¾ in. barrel, blued finish, rubber stock, length over all 6¾ in., w t 23 oz. ..... each $20.00

No. C5—Pocket, 38 cal., center fire, 7 shots, 4½ in. blued barrel, length over all 7½ in., w't 31 oz..... each 24 00



No. 45—Military, 45 cal., center fire, 7 shots, blued, 5 in. barrel, length over all 8 in., w't 32½ oz ...each $26.00



The No. 7 is an improvement over the old model, combining all new features, including the new safety catch, take down device, firing pin, magazine catch and slide top.

Browning's Patent.

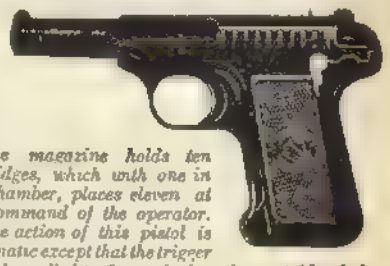
No. 7—Military, 38 cal., center fire, 8 shots, blued, 6 in. barrel, length over all 9 in, w't 37 oz ..... each $25 50

Extra Magazines.

25 cal., for Colt's pistols	each $1 00
32 cal., for Colt's pistols	" 1 25
380 cal., for Colt's pistols	" 1 50
38 cal., for Colt's pistols	" 1 75
45 cal., for Colt's pistols	" 1 75

The action of these pistols is automatic except that the trigger must be pulled to fire each shot, the cartridges being supplied from a detachable magazine inserted in the handle of the pistol. After the pistol is charged with a filled magazine, one opening movement is made by hand, bringing the first cartridge into the chamber. On pulling the trigger the cartridge is fired, the empty shell extracted, and a new cartridge loaded into the chamber, all these operations taking place automatically without any manipulation of the arm. This automatic operation of the pistol is effected by the recoil of the moving parts, and as a consequence the recoil is so absorbed in being utilized that it has no disturbing effect. The first shot can be discharged more quickly than from any arm made, as this pistol can be carried with perfect safety while the hammer is at full cock.

SAVAGE AUTOMATIC PISTOLS.



The magazine holds ten cartridges, which with one in the chamber, places eleven at the command of the operator.

The action of this pistol is automatic except that the trigger must be pulled to fire each shot, the cartridge being supplied from a detachable magazine inserted in the handle of the pistol

Pocket Model.

No. 15—32 cal., rimless smokeless cartridges 10 shots, length over all 6½ in., w t 19 oz ... .each $15 00

LUGER AUTOMATIC PISTOLS.

Action Closed.

Ammunition, Smokeless.

7.65 MM—Luger, soft point, made in Germany, 1000 in case.....per M $26 00

9 MM—Luger, soft point and metal case, made in Germany, 1000 in a case ....per M $26.00

Action Open.

Muzzle Velocity 1,150 Feet, Maximum Range 2,000 Yards.

No. 9—7.65 M M or 30 cal., center fire, 8 shots, blued finish, walnut scored stock, 4½ in. barrel, w t 29 oz, length 9 in ..... each $25 00

No. 18—9 M M caliber, center fire, 8 shots, blued finish walnut scored stock, 4½ in. barrel, w't 29 oz., length 9 in..... .....each 25.00

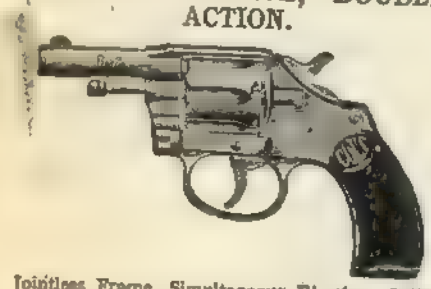
Extra Magazines, for Nos. 9 and 18. " .75

Its chief points are its fine appearance, balance, simplicity of action, combined with its rapidity of fire and wonderful accuracy. It operates on the link system. The recoil caused by the discharge of the cartridge forces the barrel and breech block backward; extracting and ejecting the empty shell. The magazine spring then brings a new cartridge up into place to be forced into the breech automatically by the return of the breech block and the pistol is again loaded and ready to be discharged. It has a magazine containing 8 cartridges, which is held in the stock of the pistol. This magazine can be thrown out when empty and replaced in a moment.

The cartridges are made with steel jacket bullets, loaded with Walsrode powder, and have greater killing power than the 44 caliber bullet. In the recent test at Springfield Armory, 116 shots were fired in a minute, and a score 24 bull's-eyes out of 30 shots was made by one man firing rapidly.

COLT'S REVOLVERS.

POCKET POSITIVE, DOUBLE ACTION.

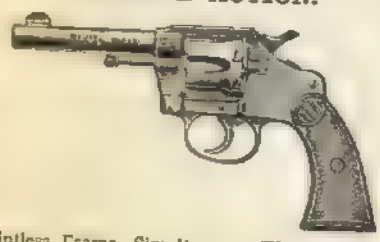


Jointless Frame, Simultaneous Ejection, Cylinder Stop, Six Shots, Center Fire, Rubber Stock, Blued Finish.

No. 7232B—32 cal., 2½ in. bbl., w't 15 oz. ..... each $13.33
No. 7332B—32 cal., 3½ in. bbl., w't 16 oz. ..... each 13 33

Use 32 short and 32 long Colt cartridges only

NEW POLICE, POSITIVE DOUBLE ACTION.



Jointless Frame, Simultaneous Ejection, Cylinder Stop, Six Shots, Center Fire, Rubber Stock.

No. 7832 —32 cal., nickel, 4 in. bbl., w't 18 oz. ..... each $14.70
No. 7832B —32 cal., blued, 4 in. bbl., w't 18 oz. ..... each 14 70
No. 7832BP—32 cal., blued, 4 in. bbl., w't 18 oz ..... each 14.70
No. 7932 —32 cal., nickel, 6 in. bbl., w't 20 oz. ..... each 14 70
No. 7932B —32 cal., blued, 6 in. bbl., w't 20 oz. ..... each 14 70
No. 7932BP—32 cal., blued, 6 in. bbl., w't 20 oz. ..... each 14 70
No. 7932BT—32 cal., blued, 6 in. bbl., fitted with target sights, w't 20 oz each 17 35

Nos. 7832, 7832B, 7932 and 7932B, use 32 short and 32 long Colt cartridges only.

Nos. 7832BP and 7932BP use Colt New Police and 32 S. & W. cartridges only.

No. 7932BP uses 32 Colt New Police and 32 S. & W. cartridges only.

This revolver is equipped with a Positive Lock which is arranged between the face of the hammer and the frame, operating automatically only when the trigger is pulled and at all other times preventing the firing pin from coming in contact with the cartridge, thereby insuring against accidental discharge.

No. 7238 —38 cal., nickel, 4 in. bbl., w't 20 oz. ..... each $16 00
No. 7238B—38 cal., blued, 4 in. bbl., w't 20 oz. ..... each 16.00
No. 7338B—38 cal., blued, 6 in. bbl., w't 24 oz. ..... each 16.00

Use 38 Colt Police Positive and 38 S. & W. cartridges only.

POLICE POSITIVE SPECIAL.

Jointless Frame, Simultaneous Ejection, Cylinder Stop, Six Shots, Center Fire, Rubber Stock.

No. 7432WB—32-20 cal., blued finish, 4 in. bbl., w't 22 oz. ..... EACH $16 00
No. 7632WB—32-20 cal., blued finish, 6 in. bbl., w't 24 oz. 16.00
No. 7238S —38 cal. nickel plated 4 in. bbl. w't 22 oz 16.00
No. 7238SB —38 cal. blued finish, 4 in bbl. w t 22 oz 16.00
No. 7338SB —38 cal., blued finish, 6 in. bbl., w't 23 oz 16 00

38 cal. revolvers use 38 cal. long or short Colt's or 38 S. & W. Special cartridges. 32-20 cal. revolvers are adapted for 32-20 Winchester cartridges

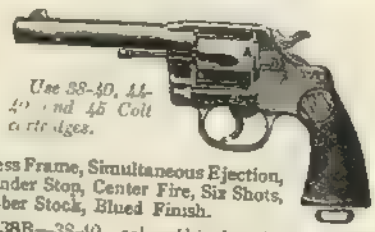
ARMY SPECIAL.

Jointless Frame, Simultaneous Ejection, Cylinder Stop, Six Shots, Center Fire, Rubber Stock.

No. 7732SB—32-20 cal., blued finish, 4½ in bbl., w't 32 oz. ..... EACH. $17.35
No. 7732S —32-20 cal., nickel plated, 4½ in bbl., w't 35 oz. 17.35
No. 7832S3—32-20 cal., blued finish, 6 in. bbl., w't 35 oz. 17 35
No. 7438S —38 cal. nickel plated 4½ in. bbl. w t 32 oz 17.35
No 7438S3—38 cal. blued finish 4½ in. bbl. w't 32 oz. 17 35
No. 7728S —38 cal., nickel plated, 6 in. bbl., w't 33 oz. 17.35
No. 7738SB—38 cal., blued finish, 6 in. bbl., w't 33 oz. 17.35
No. 7441S —41 cal., nickel plated, 4½ in. bbl., w't 31 oz. 17 35
No. 7441SB—41 cal., blued finish 4½ in. bbl., w't 31 oz. 17 35
No. 7741SB—41 cal., blued finish, 6 in. bbl., w't 33 oz 17.35

Nos. 7732SB to 7832SB use 32-20 Winchester cartridges, Nos. 7438S to 7738SB use 38 S. & W. Special in addition to 38 Long and Short Colt cartridges. Nos. 7441S to 7741SB use 41 Long and Short Colt Cartridges.

NEW SERVICE, DOUBLE ACTION.



Use 38-40, 44-40 and 45 Colt cartridges.

Jointless Frame, Simultaneous Ejection, Cylinder Stop, Center Fire, Six Shots, Rubber Stock, Blued Finish.

No. 7538B—38-40 cal. 4½ in. bbl., w't 40 oz. ..... EACH $18 67
No. 7638B—38-40 cal. 5½ in. bbl., w't 43 oz. 18 67
No. 7838B 38-40 cal., 7½ in. bbl., w't 45 oz. 18.67
No. 7544B—44-40 cal., 4½ in. bbl., w't 40 oz. 18 67
No. 7644B—44-40 cal., 5½ in. bbl., w't 41 oz. 18.67
No. 7744B—44-40 cal., 7½ in. bbl., w't 42 oz. 18 67
No. 7545B—45 cal., 4½ in. bbl., w't 41 oz. 18 67
No. 7745B—45 cal., 7½ in. bbl., w't 42 oz. 18 67

NEW SERVICE TARGET.

No. 7744BT —44 cal., center fire, 6 shots, blued finish, checkered walnut stock, 7½ in. bbl., chambered for 44 Russian cartridges, with adjustable front and wind gauge rear sights, guard straps and trigger finely checked each $30 67

Use 44 S. & W. Russian cartridges

NEW OFFICERS' MODEL.

No. 7738BT—38 cal., center fire, 6 shots, blued finish, checkered walnut stock, 6 in. bbl., w't 32 oz. ..... each $20.00
No. 7938BT—7½ in. barrel, otherwise the same as No. 7738BT, w't 35 oz. each 20.00

The front sight of Nos. 7744BT and 7738BT and 8938BT is adjustable for elevating, thus giving a very wide range, which is especially desirable in a target revolver, and is used at different ranges for varying loads, the sighting always being perfect, and the rear sight is adjustable for windage. The stocks are of fine selected walnut, handsomely checked. The action is hand finished, and is perfect in all detail, and the guard, straps and trigger are finely checked. This arm, like the New Army, is designed for 38 long Colt (U. S. Service cartridge) and 38 S. & W. special.

REVOLVERS.

BABY HAMMERLESS.

Nickel Plated, Folding Trigger.

No. 200 —22 cal., rim fire, 6 shots, rubber stock, length over all 4 in., w't 5 oz. each $2.50

No. 300 —32 cal., center fire, 5 shots, rubber stock, length over all 5 in., w't 8 oz. ..... each 3.00

No. 300P—22 cal., rim fire, 6 shots, pearl stock, length over all 4 in., w't 5 oz., each..... 3.50

No. 300P—32 cal., center fire, 5 shots, pearl stock, length over all 5 in., w't 8 oz..... each 4.00

22 cal. adapted for 22 short or long; 32 cal. for 32 S. & W. short.

BABY AUTOMATIC.

2 Inch Barrel, Six Shots, Rim Fire, Automatic Ejector Folding Trigger, Length Over all Five Inches.

No. 222 —22 cal., nickel, rubber stock, w't 6 oz..... each $3.75

No. 222B —22 cal., blued, rubber stock, w't 6 oz..... each 4.00

No. 222P —22 cal., nickel, pearl stock, w't 6 oz..... each 4.75

No. 222PB—22 cal. blued, pearl stock, w t 6 oz..... each 5 00

Adapted for 22 long or short cartridges.

SMITH & WESSON HAND EJECTOR.

Model 1902, Jointless Frame, Simultaneous Ejecting, Round Handle, Rubber Stock.

No. 6422—22 cal., rim fire, 7 shots, blued, 3 or 3½ in. bbl., w't 9⅝ oz..... each $14.70

No. 6522—22 cal., rim fire, 7 shots, nickel, 3 or 3½ in. bbl., w't 9⅝ oz.. each..... 14 70

Adapted for 22 short or 22 long.

SMITH & WESSON.

Hinge Pattern.
Automatic Ejector, Center Fire, Rubber Stock, Five Shots.

No. 9232—32 cal., blued, 3 or 3½ in. bbl., w t 13 oz..... each $16 00

No 9332—32 cal., nickel, 3 or 3½ in. bbl. w't 13 oz..... each 16.00

No. 9238—38 cal., blued, 3½ in. bbl., w't 18 oz. each 17 40

No. 9338—38 cal., nickel, 3½ in. bbl., w't 18 oz..... each 17 40

No. 9438—38 cal., blued, 4 in. bbl. w't 17½ oz..... each 17 40

No. 9538—38 cal., nickel, 4 in. bbl. w t 17½ oz..... each 17 40

No. 9638—38 cal., blued 5 in. bbl. w't 18 oz..... each 17 40

No. 9738—38 cal., nickel, 5 in. bbl. w't 18 oz..... each 17.40

No. 9838—38 cal., blued, 6 in. bbl. w't 18½ oz..... each 17 40

No. 9938—38 cal., nickel 6 in. bbl., w t 18½ oz..... each 17 40

32 cal. adapted for 32 S. & W. long or short, 38 cal. for 38 S. & W.

New Departure Hammerless.
Safety Attachment, Center Fire, 5 Shot, Rubber Stock.

No. 32N —32 cal., nickel, 3 or 3½ in. bbl., w't 14 oz..... each $17.40

No. 32B —32 cal. blued, 2, 3 or 3½ in. w t bbl 14 oz..... each 17.40

No. 38N—38 cal., nickel 3 4 in. bbl., w't 18½ oz..... each 18.66

No. 38B—38 cal., blued 3¼ in. bbl., w't 18½ oz..... each 18 66

No. 48N—38 cal., nickel, 4 in. bbl. w't 19 oz..... each 18 66

No. 48B—38 cal., blued, 4 in. bbl. w't 19 oz..... each 18.66

No. 58N—38 cal., nickel, 5 in. bbl. w t 20 oz..... each 18 66

No. 58B—38 cal., blued, 5 in. bbl., w t 20 oz..... each 18 66

No. 68N—38 cal., nickel, 6 in. bbl., w't 21 oz... each 18 66

No. 68B—38 cal. blued, 6 in. bbl., w t 21 oz..... each 18 66

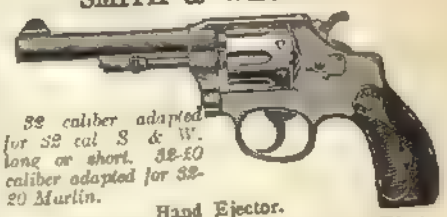
32 cal. adapted for 32 S. & W. long or short; 38 cal. for 38 S. & W.

Model 1906, Hand Ejector.

No. 6844SB—44 cal., 6 shot, 6½ in. bbl., blued, checked wood stock, square handle w't 38 oz..... each $25 00

Adapted for 44 S. & W. special or 44 S. & W. Russian cartridges

SMITH & WESSON.



32 caliber adapted for 32 cal S & W. long or short. 32-20 caliber adapted for 32-20 Marlin.

Hand Ejector.

Model 1903, Jointless Frame, Simultaneous Ejecting, Six Shots, Rubber Stock, Round Handle.

No. 6432 —32 cal., blued, 3¼ in. bbl., w't 17¼ oz..... each $17 40

No. 6532 —32 cal., nickel, 3¼ in. bbl w't 17¼ oz..... each 17 40

No. 6832 —32 cal., blued, 4¼ in. bbl., w't 18½ oz..... each 17 40

No. 6732 —32 cal., nickel, 4¼ in. bbl., w t 18½ oz..... each 17.40

No. 6832 —32 cal., blued finish, 6 in. w't bbl., 20 oz..... each 17 40

No. 6932 —32 cal., nickel, 6 in bbl w't 20 oz..... each 17 40

Military and Police.

Model 1902, Jointless Frame, Simultaneous Ejecting, Six Shots, Round Handle, Rubber Stock.

No. 6432W —32-20 cal., blued, 4 in. bbl., w't 32 oz..... each $20 00

No. 6532W—32-20 cal., nickel, 4 in. bbl., w't 32 oz..... each 20.00

No. 6632W—32-20 cal., blued, 5 in. bbl., w t 31 oz..... each 20 00

No. 6732W—32-20 cal., nickel, 5 in. bbl., w't 31 oz..... each 20 00

No. 6832W —32-20 cal., blued 6½ in. bbl. w t 33 oz..... each 20 00

No. 6932W—32-20 cal., nickel, 6½ in. bbl., w't 36 oz..... each 20 00

No. 6438 —38 cal., blued, 4 in. bbl., w t 28 oz..... each 20 00

No. 6538 —38 cal., nickel, 4 in. bbl., w t 28 oz..... each 20 00

No. 6638 —38 cal., blued, 5 in. bbl. w't 30 oz..... each 20 00

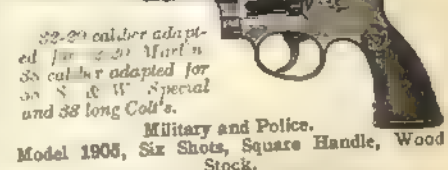
No. 6738 —38 cal., nickel, 5 in. bbl., w t 30 oz..... each 20 00

No. 6838 —38 cal., blued, 6½ in. bbl., w t 32 oz..... each 20 00

No. 6938—38 cal., nickel, 6½ in. bbl., w't 32 oz..... each 20 00

No. 6638T—38 cal., target, blued, 5 in. barrel, wood stock, target sights, w't 25 oz..... each 22 00

Adapted for 38 S. & W. Special or 38 Long Colt's.



32-20 caliber adapted for 32-20 Marlin 38 caliber adapted for 38 S. & W. Special and 38 long Colt's.

Military and Police.

Model 1905, Six Shots, Square Handle, Wood Stock.

No. 6432WSB—32-20 cal., 4 in. bbl., blued w t 31 oz..... each $21 33

No. 6632WSB—32-20 cal., 5 in. bbl., blued w't 31 oz..... each 21 33

No. 6832WSB—32-20 cal., 6½ in. bbl., blued w t 33 oz..... each 21 33

No. 6438SB —38 cal., 4 in. bbl., blued, w't 28 oz..... each 21 33

No. 6538SB —38 cal., 4 in. bbl., nickel w't 28 oz..... each 21 33

No. 6638SB —38 cal., 5 in. bbl., blued, w't 30 oz..... each 21 33

No. 6838SB —38 cal., 6½ in. bbl., blued, w't 30 oz..... each 21.33

No. 6638SBT —38 cal., 5 in. bbl., fitted with Payne front and rear sights, blued, w't 30 oz..... each 23.33

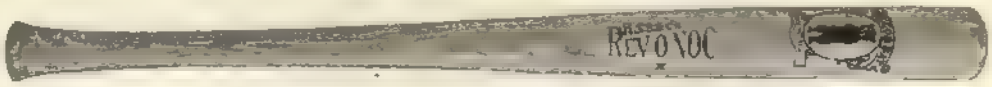
No. 6838SBT —38 cal., 6½ in. bbl. fitted with Payne front and rear sights, blued, w't 30 oz..... each 23 33

BASE BALL BATS.

THE "REV-O-NOC" "CUB" LINE.

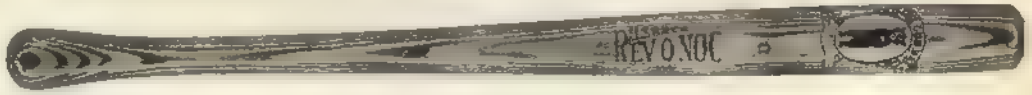
The REV-O-NOC "Cub" Bats are made of finest quality selected second growth white ash thoroughly seasoned in the following shapes and models, by men who have made bat making a life study. All REV-O-NOC Cub' bats are hand turned and finished, and for elegance of appearance, perfection of balance and length of life are unequaled.

The word REV-O-NOC is burned into the wood and the magnificent coloring of the "Cub" transfer adds much to the attractiveness of the line.

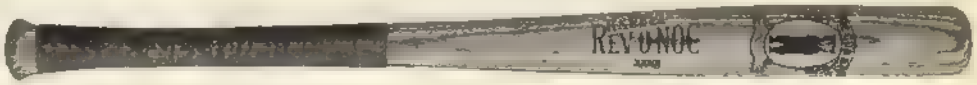


No. X REV-O-NOC – "Cub," natural finish, shellaced and polished assorted lengths 32 to 35 in., w't per doz 24¾ lbs ..per dozen $13.00

No. XX REV-O-NOC – "Cub," ebony finish, taped handle, assorted lengths 32 to 35 in., w't per doz 25½ lbs . per dozen $14 40

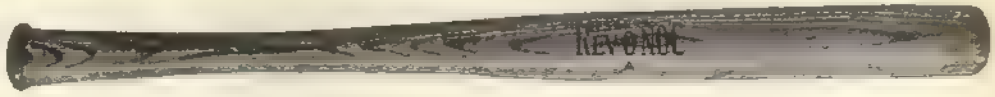


No. XXX REV-O-NOC "Cub" flame burnt finish, shellaced and polished mushroom handle lengths 32 to 35 in w't per doz 27 lbs per dozen $13 00

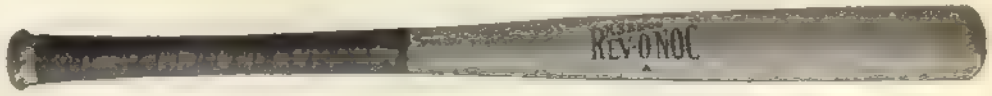


No. XXXX REV-O-NOC "Cub" waxed and polished, grain filled with light brown filler taped handle assorted lengths 32 to 35 in., w't per doz. 24 lbs .....per dozen $14.40

No. A2 REV-O-NOC – "Cub," boys', flame burnt finish, taped handle, length 31 in., w't per doz 25½ lbs .. per dozen $7.00



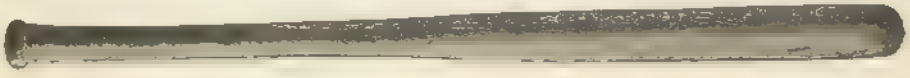
No. A REV-O-NOC—Fine quality selected second growth white ash, well seasoned, antique green filled, waxed and polished, assorted lengths 32 to 35 in., w't per doz. 16½ lbs..... .....per dozen $10.00



No. A1 REV-O-NOC—Selected second growth white ash, air dried, natural finish, oiled, taped handle, assorted lengths 32 to 35 in., w't per doz 12¾ lbs., per dozen..... ..... $7.00

No. B1 REV-O-NOC—Men's strictly second growth air dried white ash, flame burnt finish assorted lengths 32 to 35 in w't per doz 27 lbs . . per dozen $3 80
No. B2 REV-O-NOC—Boys', strictly second growth air dried white ash flame burnt finish, length 32 in., w't per doz 24 lbs ..... " 3.80
No. C1 REV-O-NOC—Boys', second growth white ash, flame burnt, length 31 in., w't per doz. 12 lbs . . . . . " 2 60

No. C2— Boys', white ash, painted green, with striking red band and black stripes, length 30 in., w't per doz 13 ½ lbs .. per dozen $1.60



No. 218—Boys', white ash, plain finish, length 30 in., w't per doz. 12¾ lbs. .....per dozen $0.80

NO. 218, THREE DOZEN; BALANCE, ONE DOZEN IN A CRATE

"REV-O-NOC" CATCHERS' MITTS.

NEW FEATURES ON OUR "REV-O-NOC" CATCHERS' MITTS.

New Buckle Protector—A new arrangement, made of leather to which a piece of felt is sewed. It rests on the back of the hand directly under the buckle of the mitt. This new buckle protector is on all mitts except the following numbers, B11, 304, 33, B12, 34, 32, 36 and 303.

Patented Thumb Laced Arrangement—An extra piece of leather sewed on the strip of the mitt between thumb and palm portion. Eyelets are inserted through the strip of this extra piece of leather and a lacing cord is laced forward and backward through these eyelets. This turns the palm of the glove to the body of the mitt and prevents the thumb of the catcher from being bent forward and also forms a strong, substantial and permanent means of holding the thumb of the glove to the body of the mitt, producing a natural deep pocket. On all mitts in our line.

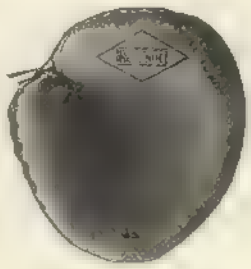
Internal Edge Stiffener—A heavy flexible fibre board which is attached to the edge strip of the mitt by means of rivets. This protects the ends of the fingers when the player scoops the ball from the ground and the flexibility of the strip is such that the mitt resumes its natural round shape when contact with the ground is removed. This feature is on all catchers' mitts except the following numbers 11, 33, 303, 34, 304, 35, 32, 307 and 36.

Modeled Patterns—All mitts on this page (except No. A6) are of the popular Modeled Pattern. This form of construction gives a palm entirely of one piece, and is rounded artistically, doing away entirely with an abrupt edge, and thus strengthening and beautifying the mitt.

Front View.

This mitt is the celebrated deep pocket shaped pattern now so popular with all catchers' in the big leagues, will hold its shape as long as it lasts and will last as long, if not longer than any other catchers' mitt made.

No expense has been spared in manufacturing to make this the best mitt on the market.



Full Leather Laced.

No. A3 REV-O-NOC. Rounded mode pattern, finest quality French imported calf skin light tan color, best asbestos felt padding deep pocket formed to receive and hold the ball, strap and buckle with patent buckle guard to protect the wrist.....per dozen $108.00

Every detail in the manufacture of this mitt is given minute and expert attention.

ONE IN A BOX.

Full Leather Laced.

No. A6 REV-O-NOC.—Professional palm or face of finest velvet buckskin, side strip, back and fingers of best selected olive calfskin, padded with best asbestos felt, deep pocket, strap and buckle with patent buckle guard to protect wrist.....per dozen $76.00

A very nobby, well finished, attractively made mitt and has always been one of the most popular in our line.

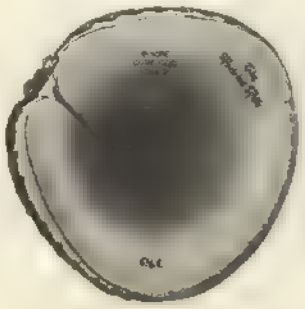
ONE IN A BOX.

Back View.

Full Leather Laced.

No. A7 REV-O-NOC.—Rounded mode pattern, highest quality selected calfskin, padded with best asbestos felt, hand formed and sewed deep pocket formed to receive and hold the ball, full leather laced, strap buckle with patent buckle guard to protect the wrist, finished in the most careful manner, per dozen.....$117.00

ONE IN A BOX.



Full Leather Laced.

No. A6½ REV-O-NOC. Rounded model, selected pearled red cowhide grained, hand sewed and padded with best asbestos felt, can be adjusted to any desired form, deep pocket requires no breaking in, full leather edge, strap and buckle at wrist with patent buckle protector.....per dozen $78.00

Looks and feels like an $8.00 professional mitt.

ONE IN A BOX.

Full Leather Laced.

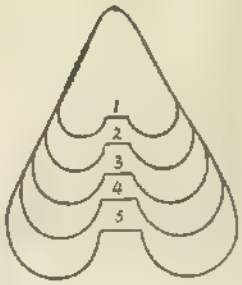
No. A8½ REV-O-NOC.—Rounded model pattern, black calfskin palm, back and fingers of black sheepskin, hand stuffed and hand moulded pad formed in such a manner as to produce a natural deep pocket, pad can be adjusted to any desired form, strap and buckle at wrist with buckle protector, per dozen.....$54.00

The rich tan color of the leather lace edge and welt against the black calfskin makes a very handsome mitt.

ONE IN A BOX.

TROLLING BAITS.

BLACK BASS.

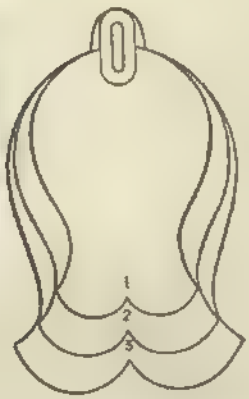


Finely Nickeled Blade, Mounted on Brass Box Swivel and High Grade Feathered Hooks.

No. 1917—Sizes	1	2	3
Size spoon	¾	1	1⅛ in.
Per doz	$1.30	1.30	1.30
Nos. 1917—Sizes	4	5	
Size spoon	1⅜	1⅝ in.	
Per doz.	$1.30	1.30	

ONE DOZEN IN A BOX.

DELAVAN.



Heavy Nickel Plated Blade, Mounted on Brass Box Swivel and Extra Long Hollow Point Hooks.

No. 1918— Sizes	1	2	3
Size spoon	1¾	2	2¼ in.
Per doz.	$2.30	2.30	2.30

THREE ON A PERFORATED CARD; ONE DOZEN IN A BOX.

WESTERN FAVORITE.

Nickeled Blade, Finest Quality Hollow Point Hooks, Genuine Barrel Swivels, Split Ring, Red Enameled Connecting Shaft.

No. 1919—Sizes	2/0	1/0	1	2	3
Size spoon	¾	⅞	1	1⅛	1⅜ in.
Per dozen	$2.30	2.30	2.30	2.30	2.30

THREE ON A PERFORATED CARD, ONE DOZEN IN A BOX.

WEEDLESS FLUTED.

"REV-O-NOC."

Heavy Nickeled Blade, Mounted on Hollow Point Weedless Feathered Treble Hooks and Brass Box Swivel.

Nos.	113	114	115	120
Size spoon	1½	1⅝	2⅛	2¼ in.
Per dozen	$4.80	4.80	5.70	6.00

ONE IN A BOX; ONE DOZEN IN A CARTON

BUCKTAIL FLUTED.

Full size cut

Highly Nickeled Blade, mounted on Hollow Point Bucktail Treble Hooks and Brass Box Swivel.

Nos.	1903	1904
Size spoon	1¼	1½ in.
Per dozen	$2.30	2.50

ONE DOZEN IN A BOX.

DOUBLE PROPELLER.

No. 1930.

No. 1901.

No. 1930—Trout, 1½ in., glow nickeled blades, revolving in opposite directions, mounted on hollow point feathered treble hooks and brass box swivel, per dozen $5.34

A very attractive bait, blades are covered with a glow substance, making this bait fine for night fishing.

No. 1901—Bass, 1½ in., glow nickel blades, otherwise same as No. 1930, per dozen ... 6.68

No. 1902—Pickerel, 2 in., glow nickel blades, otherwise same as No. 1930, per dozen 7.50

ONE DOZEN IN A BOX.

MISCELLANEOUS BAITS.

TANDEM.

No. 1931—Bass, 1½ in. nickeled blades, mounted on brass box swivel and fine quality feathered treble hooks, per dozen $4 00

No. 1932—Pickerel, 2 in. nickeled blades otherwise same as No. 1931 .. per dozen 5.00

ONE ON A CARD, ONE DOZEN IN A BOX.

BUCKTAIL.

No. 1933. No. 1934.

No. 1933—Bucktail minnow spoon, size 4 nickeled fluted blade, one treble and one single hook, genuine bucktail hair, per dozen $5 00

Genuine bucktail not body hair, is used. Will not mat. For trolling and casting

No 1934—Bucktail Gang, genuine bucktail, mounted on 3/0 treble hooks and one 4/0 sproat single hook, extra strong, waterproof wrapping, per dozen $3.80

ONE ON A CARD; ONE DOZEN IN A BOX.

COAXER.

JAMISON'S.

No. 1—Pickerel and large bass, cork body, red wings, weedless hook per dozen $9.00

No. 2—Bass, cork body, red wings, weedless hook, smaller than No. 1. per dozen 9 00

No. 5—Muscallonge, cork body, red wings, weedless hook, large size, per dozen 15 00

Coaxer baits are intended for all-around bass, pickerel and muscallonge fishing. Are very attractive and life-like. Each is practically two distinct kinds of bait in one. In addition to having the appearance of a fish while floating on the surface of the water, these baits look for all the world like big bugs when they are flying through the air; a feature that makes them particularly good for bass fishing. Will go through all kinds of weeds and lilies without snagging. Easy to cast and can be used for skittering and trolling as well. A trailer hook for short biters with each bait.

ONE IN A BOX.

COAXER UNDERWATER.

No. 3—JAMISON'S, combination metal and wound body, red feather tail, large open weedless hook .....per dozen $6.80

This bait is designed especially for deep fishing, although it may be used near the surface by rapid reeling. Has no equal for ease of casting, is absolutely weedless and a dead sure killer. When cast, the head goes first and the fluttering of the feathers gives the bait a very life-like appearance. For casting or trolling. Body of bait is about one-half larger than it appears in illustration.

ONE IN A BOX.

TROUT FLIES AND SPOONS.

No. 4. No. 9.

JAMISON'S.

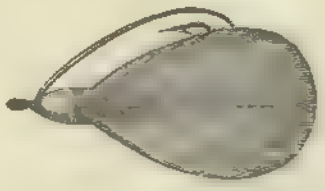
No. 4—Coaxer Trout Fly (floating), cork body, 12 assorted colors, No. 7 hollow point hook .....per dozen $4 80

This bait is the nearest approach to real life ever tied to a line. It rides right side up on the surface of the water under all conditions and never sinks or turns over. When it is used in running water it has the appearance of swimming and apparently of its own accord. To fully appreciate the beauties of this little bait it must be seen in use. Best hollow point hooks. Made to order with any size hook desired.

No. 9—Trout Spoon, nickeled spoon on hollow point hooks, sizes 2, 4 and 6, assorted colors, red, yellow, white and brown .....per dozen $3 80

NO. 4, LOOSE, NO. 9, FOUR ASSORTED COLOR FLIES ON EACH SIZE HOOK ON PERFORATED CARDS CONNECTED. WE DO NOT BREAK CARDS.

BASS FLIES.



No. 7—JAMISON'S, solid waterproof body, red wings large open weedless hook, per dozen $4 20

One of the best and most attractive flies made. Best quality sproat hooks. Size specially selected full size feathers. Body can not become loose. Feathers will not break or fray out. Superior quality weed guard.

ONE IN A BOX.

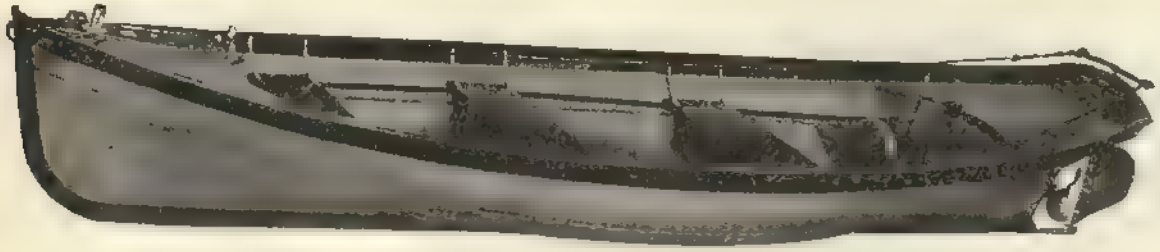
THE TEASER.

No. 6—JAMISON'S tandem bait, cork bodies, red wings, large weedless hooks ..... per dozen $16 00

When in full flight this tandem bait bears a striking resemblance to a couple of bugs. The two separate hooks make it a great killer, as well as enabling it to occasionally take two bass at once. Can be used either in tandem form or singly, as one of the baits is on a split ring and can be detached and cast alone. Gives very little trouble when used in weeds. For casting or skittering.

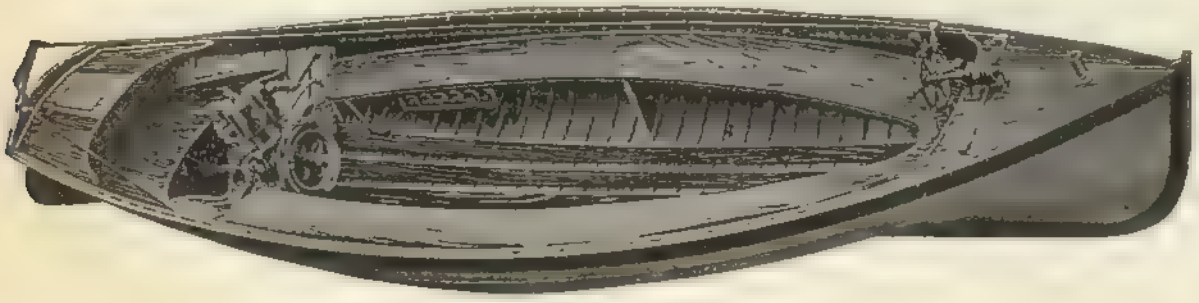
ONE IN A BOX

DETROIT STEEL LAUNCHES.*



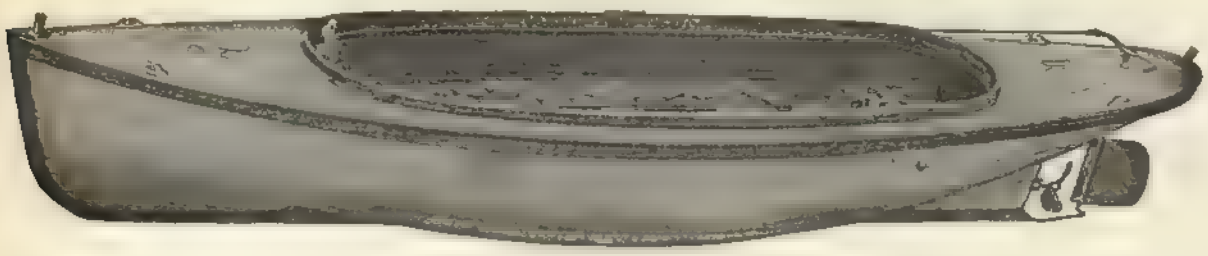
Dimensions—Length 16 ft., beam 4 ft. 2 in., draught, loaded, about 12 in., seating capacity 6 to 8 persons, speed, about 7 to 7½ miles an hour
Fittings—Complete with 2 H. P. 2 cycle reversible engine with speed controlling lever, bronze propeller, steering wheel in bow and flag pole socket, crated F. O. B. cars or steamer.

16 ft., SPECIAL, shipping w't crated, about 700 lbs.....each $225 00



Dimensions—Length 16 ft., beam 4 ft. 6 in., depth amidships 2 ft. 2 in., seating capacity about 8 to 10 persons. Speed about 7½ miles per hour.
Frame—Ribs of best selected white oak, 7/8 x 1½ in. every 4 in. Hull of galvanized steel with lapped seams, decks best quality cypress, fitted and finished with spar varnish. Sheer strakes, best grade white oak, natural finish. Seats and bulkheads cypress. All inside woodwork finished in natural color.
Fittings—All launches fitted with heavy iron shoe to protect entirely the rudder and propeller, so that the boat runs into an obstruction. Each 16-ft. launch is fitted with steel cored cable running around the decks for steering purposes. Every boat fitted with air tight compartments and thoroughly tested out before shipment is made.
Complete, with 2 H. P. 2-cycle reversible engine with speed controlling lever, bronze propeller, steering wheel in bow, flag pole sockets and side seats, crated F. O. B. cars or steamer.

16 ft., Grade A, shipping w't crated, about 700 lbs.....each $250.00



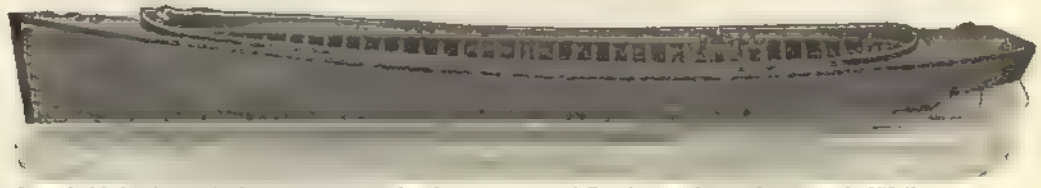
Dimensions—Length 18 ft., beam 4 ft. 6 in., draught, about 14 in. Height of bow 2 ft. 8 in., height of stern 2 ft. 11 in., depth amidships 2 ft. 2 in. Length of cockpit 10 ft. 3 in., width of cockpit 3 ft. 6 in. Length forward deck 3 ft. 9 in., length aft deck 4 ft. Speed about 8 miles an hour with 2 H. P. engine. Carrying capacity, about 10 to 12 persons.
Frame—Ribs of best selected white oak, 7/8 x 1½ every 3 in. Hull of galvanized steel cut in strips and lock seamed. These seams, running from bow to stern, act like iron girders encircling the boat, making it impossible to pull apart.
Decking—Fore and aft of wood, covered with painted canvas, ecru color, set in white lead, same as all up-to-date launches are now being finished.
Cockpit—Seats extend fore and aft and are so situated that the coaming forms a comfortable back rest.
Fittings—Woodwork finished natural color, metal work painted with silver aluminoid, every launch fitted with heavy iron shoe under rudder to protect entirely the rudder and propeller, providing the boat runs into an obstruction. Brass and cherry trimmed steering wheel, speed controlling lever, steel cored cable and forward chalks and cleats included without extra charge.
Crated F. O. B. cars or steamer.

18 ft. Auto, complete with 2 H. P. 2-cycle reversible engine, w't crated, about 1,000 lbs.....each $380.00
18 ft. Auto, complete with 3 H. P. 2-cycle reversible engine, w't crated, about 1,000 lbs....." 410.00
18 ft. Auto, complete with 5 H. P. 2-cycle reversible engine, w't crated about 1,000 lbs....." 470.00

Send for special catalogue listing full line of Detroit launches, boats and engines.

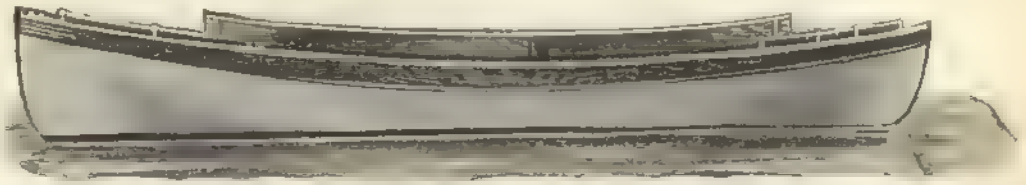
★FOR FACTORY SHIPMENT ONLY.

"REV-O-NOC" WOODEN LAUNCHES.*



Dimensions—Length 16 ft., beam 48 in., seating capacity 6 persons, speed 7 miles per hour, shipping w't 350 lbs.
Frame, Keel, Stem and Stern Post—Best quality oak, ribs of oak, steam bent.
Planking—Is of lap strake construction, of northern white cedar, fastened to frames with best quality iron clout nails.
Decking—Is of oak or ash, coaming of oak, seats of cedar or basswood with locker under center seat for batteries and tools.
Finish—The boat is painted white outside and drab inside the seats, deck, coaming and covering boards finished with the best grade marine varnish.
Fittings—Steel stem band, nickel plated bow chocks, quarter chocks and cleats, steel rudder properly connected with coppered chain to nickel plated steering wheel in bow, galvanized steel gasoline tank under bow deck.
Fastenings—For fresh water, iron screws and nails, and for salt water brass screws and copper nails.
Motor—Consists of two horse-power reversible motor direct connected to propeller shaft and wheel, muffler, speed controller, batteries, switch, tools, etc.

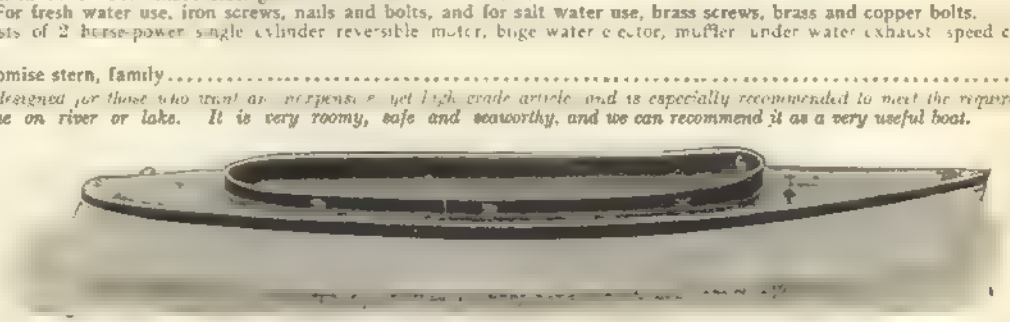
REVONOC 16 ft., hunting and fishing ..... **each $195.75**



Dimensions—Length 16 ft., beam 54 in., depth 23 in., speed 7½ miles per hour, seating capacity 10 persons, carrying capacity 2 400 lbs., shipping w't 800 lbs.
Frame—White oak keel, natural crook stem, oak stern, oak frames, steam bent, spaced close together, fastened to oak floor timbers with screws.
Planking—Garboard and sheerstrake selected oak, balance of planking northern cedar, all screw-fastened to frames and all butts have oak backs, all seams carefully caulked with cotton and puttied with white lead putty.
Decking—Covering board and coaming rear oak, all screw fastened and plugged flush, deck beams oak, sawed to proper crown. Decking oak strips grooved and tongued, blind fastened and laid in shellac. Fenders made of oak half round, fastened to upper and lower edges of sheerstrake.
Cockpit—Ceiled up in narrow strip V joint cedar ceiling, seats on side running fore and aft, made as lockers and nicely paneled fronts. Floor of pine or cedar.
Bulkheads—Built in either end of cockpit with a small door, and nicely finished.
Engine Bed—Made of oak timbers, running fore and aft, notched out over ribs to fit planking and bolted through.
Finish—The entire boat is scraped and sanded down to a smooth surface and finished in three coats of anti-fouling yacht paint, green below the water line and three coats of white above. The sheerstrake, fenders, deck, coaming and cockpit are finished in natural wood with best grade of marine varnish. Cockpit floor nicely painted. The hull also well painted on the inside to preserve the planking before the ceiling is put on.
Fittings—Steel stem band, nickel plated bow chocks, quarter chocks and cleats. Steel rudder properly connected with coppered chain to nickel plated steering wheel in bow. Galvanized steel gasoline tank under bow deck.
Fastenings—For fresh water use, iron screws, nails and bolts, and for salt water use, brass screws, brass and copper bolts.
Motor—Consists of 2 horse-power single cylinder reversible motor, bilge water ejector, muffler, under water exhaust, speed controller, batteries, switch, tools, etc.

REVONOC 16 ft., compromise stern, family ..... **each $270.00**

This boat is designed for those who want an inexpensive yet high grade article, and is especially recommended to meet the requirements that occur at a small family home on river or lake. It is very roomy, safe and seaworthy, and we can recommend it as a very useful boat.



Dimensions—Length 17 ft., beam 4 ft. 6 in., depth amidship 24½ in., seating capacity 10 persons. Speed, 8 miles per hour. Shipping w't 900 lbs.
Frame—White oak keel, natural crook stem, oak stern, oak frames, steam bent, spaced close together, fastened to oak floor timbers with screws.
Planking—Garboard and sheerstrake selected oak, balance of planking northern cedar, all screw-fastened to frames and all butts have oak backs, all seams carefully caulked with cotton and puttied with white lead putty.
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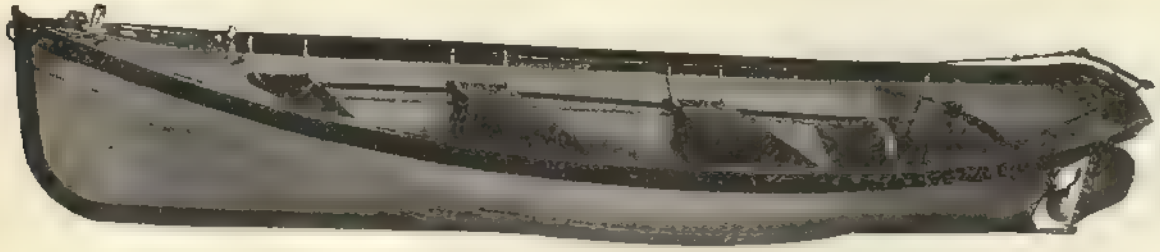
Fastenings—For fresh water use, iron screws, nails and bolts, and for salt water use, brass screws, brass and copper bolts.
Motor—Consists of single cylinder 3 horse-power motor, reversible propeller, bilge water ejector, muffler, under water exhaust, speed controller, batteries, switch, tools, etc.

REVONOC 17 ft., Torpedo stern ..... **each $354.40**

The Torpedo Stern Launch has so many points of merit over the old style fan tail stern variety, which are at once apparent to the average customer, that we have decided without hesitation, to offer it as a Standard Launch.
These boats are staunch, roomy, and splendid sea boats and are at least 10 per cent faster with the same power than the old style model.
The interior of the cockpit can be arranged to suit the purchaser, some preferring willow chairs to the paneled side seats.

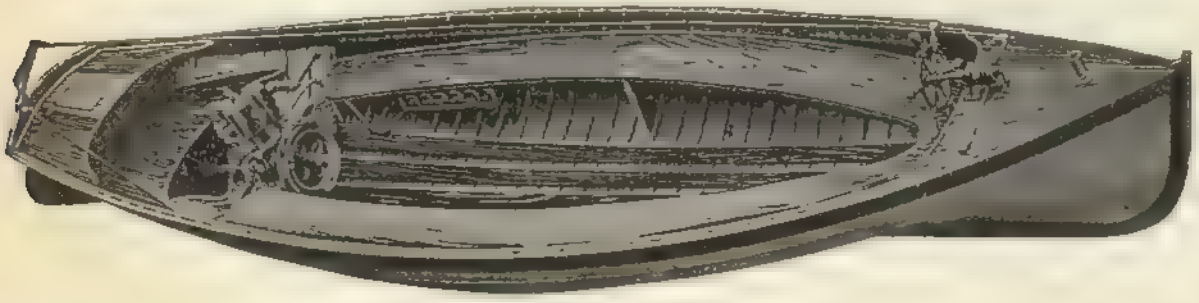
**FOR FACTORY SHIPMENT ONLY.*

DETROIT STEEL LAUNCHES.*



Dimensions—Length 16 ft., beam 4 ft. 2 in., draught, loaded, about 12 in., seating capacity 6 to 8 persons, speed, about 7 to 7½ miles an hour
Fittings—Complete with 2 H. P. 2 cycle reversible engine with speed controlling lever, bronze propeller, steering wheel in bow and flag pole socket, crated F. O. B. cars or steamer.

16 ft., SPECIAL, shipping w't crated, about 700 lbs.....each $225 00



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Fittings—All launches fitted with heavy iron shoe to protect entirely the rudder and propeller, so that the boat runs into an obstruction. Each 16-ft. launch is fitted with steel cored cable running around the decks for steering purposes. Every boat fitted with air tight compartments and thoroughly tested out before shipment is made.
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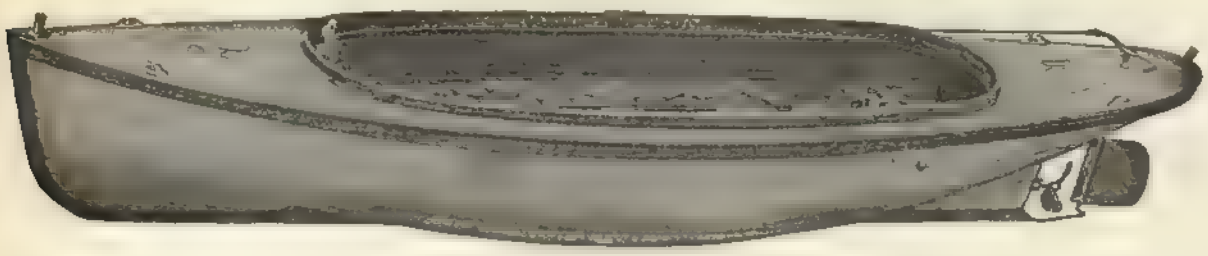
16 ft., Grade A, shipping w't crated, about 700 lbs.....each $250.00



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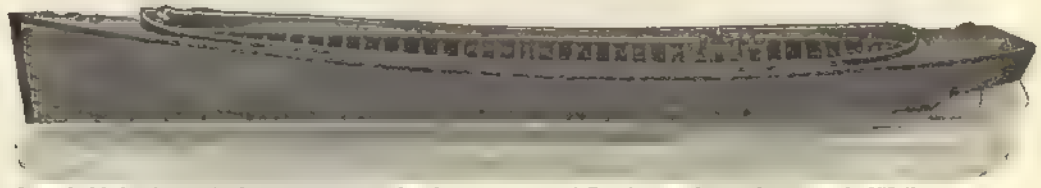

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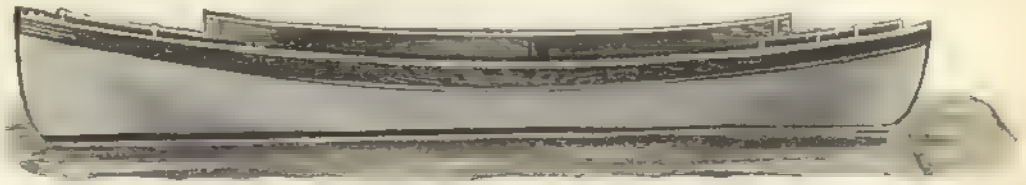
REVONOC 16 ft., hunting and fishing ..... **each $195.75**



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Cockpit—Ceiled up in narrow strip V joint cedar ceiling, seats on side running fore and aft, made as lockers and nicely paneled fronts. Floor of pine or cedar.
Bulkheads—Built in either end of cockpit with a small door, and nicely finished.
Engine Bed—Made of oak timbers, running fore and aft, notched out over ribs to fit planking and bolted through.
Finish—The entire boat is scraped and sanded down to a smooth surface and finished in three coats of anti-fouling yacht paint, green below the water line and three coats of white above. The sheerstrake, fenders, deck, coaming and cockpit are finished in natural wood with best grade of marine varnish. Cockpit floor nicely painted. The hull also well painted on the inside to preserve the planking before the ceiling is put on.
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REVONOC 16 ft., compromise stern, family ..... **each $270.00**

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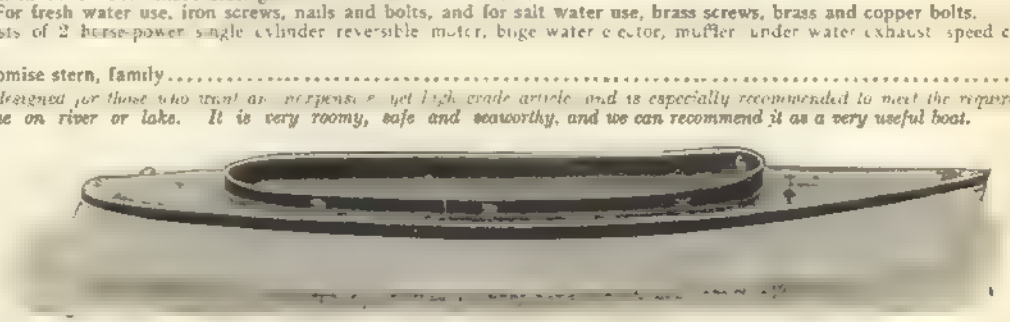

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REVONOC 17 ft., Torpedo stern ..... **each $354.40**

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These boats are staunch, roomy, and splendid sea boats and are at least 10 per cent faster with the same power than the old style model.
The interior of the cockpit can be arranged to suit the purchaser, some preferring willow chairs to the paneled side seats.

**FOR FACTORY SHIPMENT ONLY.*

DETROIT STEEL ROWBOATS.*

No. 115—Square stern rowboat, especially designed for livery purposes, length 14 ft., beam amidships 44 in., depth amidships 14 in., height of bow 22 in., height of stern 24 in., distance between ribs 4 in., w't about 150 lbs., crated about 200 lbs., complete with one pair of oars..... each $57 60

A carrying capacity of five persons, air tight compartments in each boat, removable footboards, first class finish and workmanship, hull galvanized steel, oak gunwales.

No. 112—Double pointed patent steel clinker boat, length 16 ft., width amidships 48 in., depth amidships 15 in., height of bow 23 in., height of stern 18 in., distance between ribs 4 in., w't about 170 lbs., crated about 230 lbs., complete with one pair oars.....each $63 00

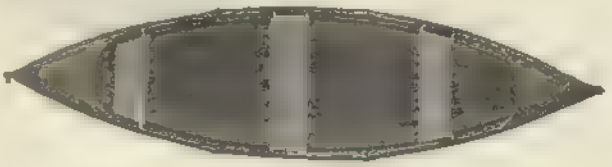
Easiest propelled boat made, will carry six or seven persons comfortably, can be rowed either way, does not leak, rust, sink, rot or crack.

No. 117—Square stern, patent steel clinker boat, length 16 ft., beam amidships 48 in., depth amidships 16 in., height of bow 24 in., height of stern 26 in., distance between ribs 4 in., w't about 180 lbs., crated about 240 lbs., complete with one pair oars.....each $72.00

Ideal boat for clubs and individuals who desire boats, handsome and graceful in appearance, absolutely seaworthy, reliable and safe under all conditions. Carrying capacity, seven persons. Air-tight compartments sufficient to float boat and passengers even when filled with water.

No. 125—Family, steel rowboat, length 16 ft., width amidships 53 in., depth amidships 18 in., height of bow 24 in., height of stern 25 in., distance between ribs 3 in., w't 190 lbs., crated about 250 lbs., complete with one pair oars..... each $80.00

Carries in perfect safety nine persons. Safest model made. Has extra large air-tight compartments. Specially designed for women and children. Impossible to capsize.



No. 133—Flat bottom steel fishing boat, length 14 ft., width amidships 44 in., depth amidships 13 in., height of bow 15 in., height of stern 15 in., distance between ribs 5 in., w't 120 lbs., crated about 150 lbs., complete with one pair oars, including live well and stoppers.....each $60.00

No. 132—Without live well and stoppers, otherwise same as No. 133..... each 56.00

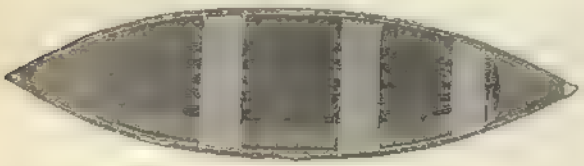
No. 131—12 ft., w't 100 lbs., crated about 130 lbs., otherwise same as No. 133.....each 52.00

No. 130—12 ft., w't 100 lbs., crated about 130 lbs., without live well and stopper, otherwise same as No. 133.....each 46 00

Is universally praised by liverymen, fishermen and sportsmen. Has a very light draught when loaded. The wide flat bottom permits great carrying capacity. The three stationary wooden fenders on the bottom of the boat protect it from damage. This is one of the most popular designs.

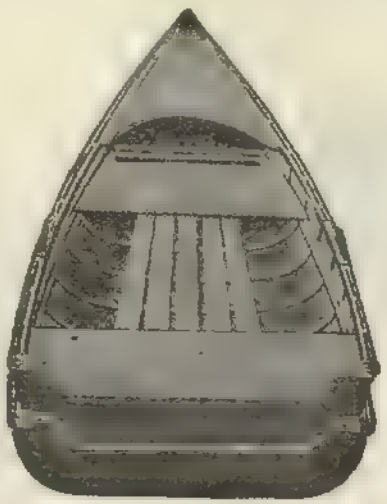
No. 150—Square stern combination packing chest or trunk boat, length 12 ft., width amidships 30 in., depth amidships 10 in., w't about 100 lbs., crated about 140 lbs., complete with one pair oars..... each $44 00

When going out to camp, save expenses on baggage by having trunk and boat in one. This boat folds in center, is roomy, safe and an ideal outfit for tourist, hunter, fisherman or other sportsmen.



No. 110—Double pointed patent steel clinker boat, length 14 ft., width amidships 45 in., depth amidships 14 in. height of bow 22 in., height of stern 22 in., distance between ribs 4 in., w't about 150 lbs., crated about 200 lbs., complete with one pair oars.....each $56.00

Being pointed at both ends, it is preferred by many, as it can be rowed in either direction. It is safe and roomy, and has the same capacity in air-tight compartments as the square end boat.



No. 161—Sectional rowboat, length 12 ft., width amidships 44 in., depth amidships 13 in., height of bow, 15 in., height of stern 15 in., distance between ribs 5 in., w't 100 lbs., crated about 130 lbs., complete with one pair oars, including live well and stopper.....each $60 00

No. 160—Without live well and stopper, otherwise same as No. 161.....each 50.00

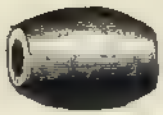
Flat bottom fishing boat. Sections lock into each other, impossible to break apart, coupling and uncoupling accomplished in a few seconds. Has air-tight compartments, light draught, and when packed can be checked as baggage, or loaded in back of automobile, buggy, etc.

Send for Special Boat Catalogue.

★ *FOR FACTORY SHIPMENT ONLY.*

FISHING NET EXTRAS AND CANOES.

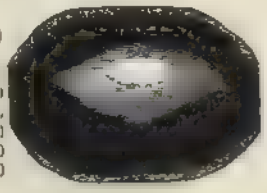
CAST LEAD SINKERS.



4 to a pound	per pound	$0.29
10 to a pound	"	.29
16 to a pound	"	.29

CEDAR FLOATS.

No. 10—1¼ ×5 in., for tram nets, per nets	per 100	$1.20	
No. 11—1¾ ×5 in., for gill nets, per 100	"	2 40	
No. 12—2 ×3 in., for seines, per 100	"	2.00	
No. 13—2½ ×3 in., for seines	"	2 80	
No. 14—2½ ×4 in., for seines	"	3 20	
No. 15—3 ×4 in., for seines	"	4 20	
No. 16—3 ×5 in., for seines	"	4 80	



NET HOOPS.

Hickory, for Bait or Fyke Nets.

6 in. to 1¼ ft. diameter, inclusive	each	$0.24
1⅜ ft. to 1¾ ft. diameter, inclusive	"	.33
2 ft. to 2¾ ft. diameter, inclusive	"	.37
3 ft. to 3¾ ft. diameter, inclusive	"	.46
4 ft. to 5 ft. diameter, inclusive	"	.60
5¼ ft. to 6 ft. diameter, inclusive	"	1.00

Made of best quality second growth hickory, square timber, smooth finish.

PINE TAR.

	⅛	1	2
Pints			
Per dozen	$1.00	1.20	1.90

NETTING NEEDLES.

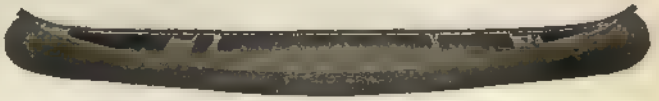
½ in., wood	each	$0.19
¾ in., wood	"	.19
1 in., wood	"	.21
1¼ in., wood	"	.21
1½ in., wood	"	.21

TARRED ROPE.

American Hemp, for bottom lines, ⅛ to 1⅜ in.	per pound	$
American Hemp, for cork lines, ¼ and ⅜ in.	"	
Manila Hemp, ¼ in.		

Sold at market price.

CANOES.



Hudson River.

Description—Ribs white cedar, 2½ in. wide at centers, tapering to 1 in. at gunwales, ⅜ in. thick, spaced from 1½ to 2 in apart.

Planking—⅛ in. light northern cedar. Copper fastened, special canoe tacks being used, which are clinched on inside of the ribs.

Gunwales—Are ⅞×1⅛ in. best quality spruce, running full length After decks are put in, finishing rails are also run full length, capping gunwales, and a neatly finished side rail gives the whole a very handsome effect.

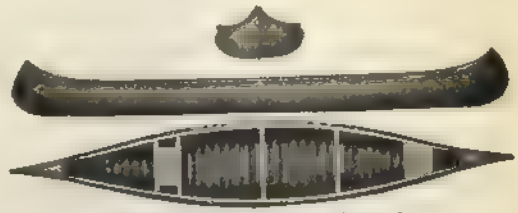
Stems—Are of select straight-grained white oak.

The Thwarts—Are of best quality oak or ash, unless otherwise specified two in each canoe, and when ordered specially an extra middle thwart can be installed at small extra charge, which may be found useful in carrying

Seats—There are two hand-caned seats.

EXTREME LENGTH	WIDTH AMIDSHIPS AT BILGE	WIDTH AMIDSHIPS ON RAILS	DEPTH AMIDSHIPS	NET WEIGHT	WEIGHT PACKED FOR SHIPMENT	EACH WITH REGULAR EQUIPMT
14 ft.	32 in.	30 in.	12 in.	55 lbs.	65 lbs.★	$44.10
15 ft.	32 in.	30 in.	12 in.	60 lbs.	70 lbs.★	58.86
16 ft.	33 in.	30½ in.	12 in.	65 lbs.	75 lbs.★	63.38
17 ft.	33 in.	31 in.	12 in.	70 lbs.	85 lbs.★	59 70
18 ft.	34 in.	31½ in	12½ in.	75 lbs.	90 lbs.★	76 16
20 ft.	36 in.	33 in.	13½ in.	80 lbs.	100 lbs.★	77 14

Sponson air chambers can be built in any Detroit canoe at $15.00 extra, with these sponsons attached, capsizing or sinking is almost impossible. Stock colors red and green.



"REV-O-NOC," Canvas Covered.

Description—Stems of white oak, ribs of white cedar reaching from gunwale to gunwale.

Planking—White cedar fastened to ribs with copper nails, breast hooks, gunwales and thwarts of birch, outside keel and stems of oak with polished brass stem bands.

Body—Canvas cover in one piece, filled and finished last two coats with canvas enamel, breast hooks, gunwales and thwarts finished natural and imitation mahogany, inside of canoe finished natural. One maple or spruce paddle any length 4½ to 6 ft. furnished with each canoe.

Seats—Cane, lazy backs and rugs, extra.

LENGTH	BEAM	DEPTH AMIDSHIPS	WEIGHT	EACH
14 ft.	32 in.	12½ in.	55 lbs.★	$54.00
15 ft.	32 in.	12½ in.	60 lbs.★	58.50
16 ft.	32 in.	12½ in.	65 lbs.★	63 00
16 ft.	34 in.	12½ in.	65 lbs.★	67.50
17 ft.	32 in.	13 in.	70 lbs.★	67.50
18 ft.	32 in.	13 in.	75 lbs.★	72.00

★*FOR FACTORY SHIPMENT ONLY.*

In shipping canvas covered canoes they are covered with burlap for which a charge of $2.00 is made, on return of this cover prepaid to factory this amount will be refunded.

Seventeen and eighteen foot canoes built to order only.

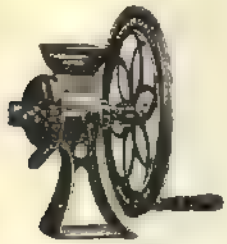
EXTRAS.

Extra Paddles, spruce or maple, 4½ to 6 ft.	each	$2.50
Cane Seats, with bolts	"	3.50
Pantasote Seats, with bolts	"	2.50

Send for special canoe catalogue

CIDER MILLS, BONE CUTTERS, ETC.

DRY BONE, SHELL AND CORN MILLS.



No. 750—Height 17¼ in., base 6½×7½ in., diam. of hopper 3½ in., diam. of wheel 19 in., capacity 1½ bu. per hr., w't 60 lbs.....each $8.50

Malleable iron frame, hopper and fly wheel, base screws to table or platform. A good general mill for farmers and poultrymen. Especially adapted for grinding bones WHEN DRY ONLY, oyster and other shells, corn, roots, bark, grain, chicken feed, salt etc.

This machine is not intended for grinding green bones, as they have to be shaved and require a special machine.

ONE IN A CRATE

GRIST MILLS.

No. 1—BAYLEY, height 8 in., heavy 18 in. balance or fly wheel, with wood grip, 5½×7½ in. hopper, cast iron base is made with holes to bolt or screw to table, machined bearings, cold drawn steel shaft, adjustable for grinding coarse or pulverizing corn, capacity 15 lbs. per hr. of fine, and 40 lbs coarse meal, w't 22½ lbs.....each $4 00

No. 10—BLACK HAWK, 11 in. malleable iron crank, chilled bearings, hardened metal grinding burrs, all parts interchangeable 5×6½ in. hopper, base bolts to table or bench, w't 17 lbs each $5 00

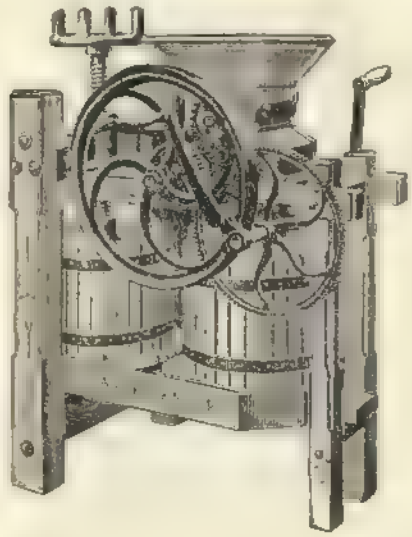
Will grind corn, wheat, rye, rice and other small grain. Easily adjusted for fine or coarse grinding.

ONE IN A CASE.

CIDER MILLS.

General Description.

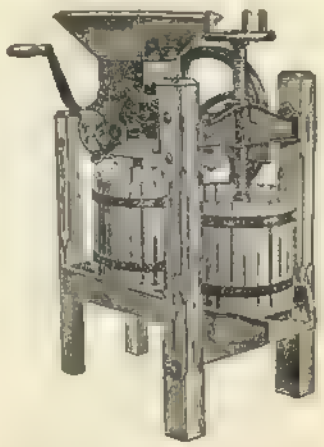
Varnished hardwood frame, securely bolted, removable hopper and lever; cast iron yoke balance wheel and journals, steel press screw with cast iron socket and top wheel with hand grips; steel shaft; cast iron roll casing with one plain and two corrugated adjustable rolls, triple geared; cast iron crank with wood grip; two plain hardwood tubs with heavy staves riveted to wrought iron bands; hardwood trough, neatly painted, striped and varnished



Capacity Six to Ten Barrels of Cider Per Day

No. 3—SENIOR, 48 in. high, 24½×40½ in. trough, 5½ in. tubs 2[illegible] in. press screw, 40 in. lever, 16×[illegible] in. hopper, floor space required 29×45 in., w't 420 lbs.....each $50 00

See general description at top of column.

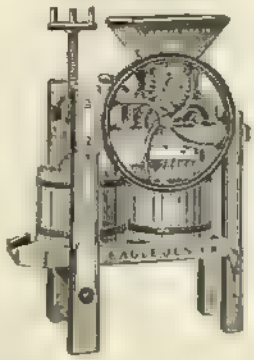


Capacity, Three to Six Barrels of Cider Per Day.

No. 2—MEDIUM, 49 in. high, 14½×29½ in. trough, 12 in. tubs, 1½×20½ in. pressed screw, 30 in. lever, 14×14 in. hopper, floor space required 22×35 in., w't 238 lbs..each $24.00

See general description.

CIDER MILLS.



Capacity Two to Four Barrels of Cider Per Day.

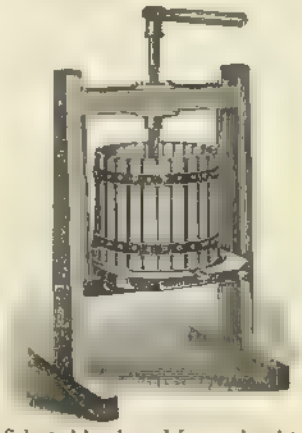
No. 1—JUNIOR, 43 in. high, 12½×28½ in. trough 10½ in tub, 1½×18½ in. press screw, 29 in. lever, 13×14 in. hopper, floor space required 20×34 in., w't 190 lbs.....each $18 00

See general description.

Capacity About One Barrel of Cider Per Day.

No. 4—FAMILY, 42 in. high, cast iron hopper 10×7½ in., studded revolving disc 7 in. diam. and roll casing 16 in. cast iron fly wheel hardwood frame securely bolted, heavy hardwood tub with staves bolted to wrought bands ¾ in. steel shaft, 25×1¼ in. steel press screw, floor standards 2×2½×20½ in., w't 110 lbs., each.....$10.00

WINE MILLS.

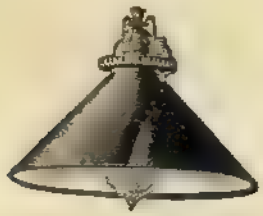


No. 5—Selected hardwood frame, height 3 ft., heavy iron cross beam, 9×3½ in. steel press screw, with 20 in. wood lever handle, fitted to an iron socket, 20½ in. floor standards, heavy hardwood tub, with heavy staves riveted to iron bands w't 65 lbs.....each $ 9.00

ELECTRIC LIGHT SHADES.

Deep Cone, Porcelain, Green Outside, White Inside.

No. 627E—7 in., for 2¼ in. holder, per dozen..... $6 25
No. 630E—10 in., for 2¼ in. holder, per dozen..... 10.00



Deep Cone, Tin, Green Outside, White Inside.

No. 408E— 8 in., standard, for 2¼ in. holder.....per dozen $2 25
No. 410E—10 in., standard, for 2¼ in. holder.....per dozen 3.00
No. 412E—12 in., standard, for 2¼ in. holder.....per dozen 4 00

Prices do not include lamps, sockets or shade holders.

Hubbell, Tin, Green Outside, White Inside.

No. 5440E—8 in., deep cone, holder attached.....per dozen $3.50
No. 5441E—10 in., deep cone holder attached.....per dozen 3 80
No. 5442E—12 in., deep cone, holder attached.....per dozen 5 00

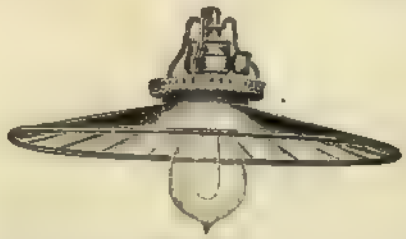
The feature about these shades is that they have the Hubbell holder attached

Deep Cone, Silver Plated Mirror Reflector, Green Outside.

No. 2107E— 7 in., for 2¼ in. holder, per dozen..... $ 9 00
No. 2108E— 8 in., for 2¼ in. holder, per dozen..... 9 00
No. 2110E—10 in., for 2¼ in. holder, per dozen..... 10 80
No. 2112E—12 in., for 2¼ in. holder, per dozen..... 13 20

For use where a very powerful light is wanted on a small space, is lined with silver plated imported mirror plated glass and increases the light from twelve to fifteen times and very valuable for show window lighting and machine work, benches, type cases, desks, etc.

Prices do not include lamps, sockets or shade holders

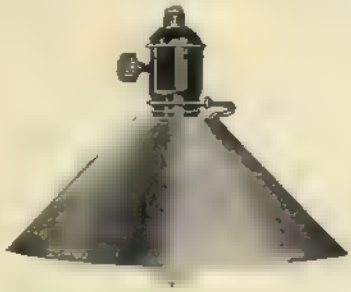


Flat, Silver Plated Mirror Reflector, Green Outside.

No. 1910E—10 in., for 2¼ in. holder, per dozen..... $ 9 60
No. 1912E—12 in., for 2¼ in. holder, per dozen..... 10.80
No. 1914E—14 in., for 2¼ in. holder, per dozen..... 13.90
No. 1916E—16 in., for 3¼ in. holder per dozen..... 18.70
No. 1918E—18 in for 3¼ in. holder, per dozen..... 22 80

For use with any system of incandescent electric light when it is desired to spread the light. Its silver plated mirror lining makes it most effective and pleasing.

Prices do not include lamps, sockets or shade holders.



Fiberlite, Green Outside, White Inside.

No. 997E— 7 in., with shade holder attached.....per dozen $1 80
No. 998E— 8 in., with shade holder attached.....per dozen 1.80
No. 910E -10 in., with shade holder attached.....per dozen 1.80

These shades are made of a tough fibrous fireproof material. Especially adapted for factories, railroad shops, etc

Parabola.

No 27E—7 in green outside frosted inside.....per dozen $5 40
No. 28E 7 in oxidized copper outside, frosted inside.....per dozen 5 40
No. 29E 7 in brush brass outside, frosted inside.....per dozen 5 40
No. 30E—Steel, 7 in., green outside, frosted inside.....per dozen 4.20

These shades cover the lamps completely, so they are really shades as well as reflectors. They are scientifically constructed getting all the light possible from the lamp and throwing it right where the user wants it. The holder which is attached to shade turns on the socket, so that the light may be thrown at any angle

Tin, Half Shade.

No. 913E—Green enamel outside, white inside for 2¼ in holder. .per dozen $2 50

Scalloped.

No. 556E—6 in., opal, for 2¼ in. holder, per dozen..... $1 63
No. 557E—7 in., opal, for 2¼ in. holder per dozen..... 1 88

Flat.

No. 606E— 8 in., opal, for 2¼ in. holder, per dozen..... $2 00
No. 610E—10 in , opal for 2¼ in holder, per dozen 2 50
No. 614E –14 in opal for 3¼ in. holder, per dozen 6 00
No. 616E—16 in , opal for 3¼ in holder, per dozen..... 8 00
No. 618E—18 in. opal for 3¼ in holder per dozen..... 10 00

Deep Cone, Crimped.

No. 966E—6 in., opal, for 2¼ in. holder, per dozen..... $1 63
No. 967E—7 in., opal, for 2¼ in. holder, per dozen..... 1 88

Flat, Crimped.

No. 958E— 8 in., opal, for 2¼ in. holder, per dozen..... $2 00
No 960E -10 in opal for 2¼ in holder per dozen.. 2 50

Orchestra.

No. 136E—Green outside, bright tin inside.....per dozen $19.00

Pulpit.

No. 138E—Polished brass . per dozen $48.00
No. 1138E—Nickel. . . . " 48.00

HOCKEY CLUBS, EXERCISERS, DUMB BELLS, ETC.

HOCKEY CLUBS.

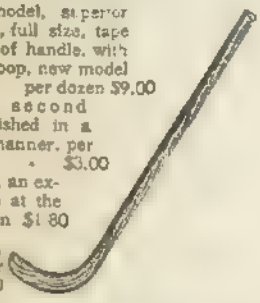
Nos. 11 and 13 Hockey Clubs are genuine Empire Canadian imported clubs, made by expert workmen, and are correct in shape.

No. 13—Empire Goal Keepers heavier than No. 11, made of selected white ash, correct shape and length, per dozen $12.00

No. 11—Empire Hockey, selected white ash, correct shape and length, per dozen $9.00

No. 14—Boys', good quality ash, length 46 in., - - - - per dozen 3.00

POLO STICKS.



No. 34 League model, superior quality hickory, full size, tape wound at end of handle, with rawhide arm loop, new model blade, - - per dozen $9.00

No. 30 Standard, second growth ash, finished in a very superior manner, per dozen, - - - $3.00

No. 26 Boys', oak, an exceptional value at the price, per dozen $1.80

No. 24—Junior, oak, boy's size, per dozen, - $1.20

HOCKEY PUCKS AND POLO BALLS.

Nos. 60 and 55.

No. 50.

No. 60—Official polo ball, highest quality materials, made according to the latest polo regulations, each ball wrapped in tinfoil and sealed, - - per dozen $12.00

No. 55—Practice size polo ball, good grade rubber coated with red paint the best ball offered at the price, - per dozen 3.00

No. 50—Regulation hockey puck, made according to specifications, finest materials, - - - - per dozen 3.00

POLO GUARDS.

A Perfect and Absolute Protection to the Shins.

No. 8—Grain leather, leather bound, well made and correctly padded, w't per doz. pair 16 lbs., - - per pair $4.00

No. 9—Heavy tan canvas, leather bound, well made and padded with reeds, w t per doz. pair 11 lbs., - per pair 2.50

WHITELY EXERCISERS.

Nos. 00 to 3.

Nos. 00 to 3.

No. 3—Fitted with extra finish noiseless cone bearing adjustable pulleys and silk covered cable, polished rubber or cork handles; foot attachment, door hinge attachment and package of hooks; extra heavy, heavy, medium or light cable; complete with Anderson's "Physical Culture," - per dozen $60.00

No. 2—Fitted with extra finish noiseless cone-bearing adjustable pulleys, all parts full nickel finish; complete in box with foot attachment, door hinge attachment and package of hooks; extra heavy, heavy, medium, light or child's cable; complete with Anderson's "Physical Culture," - per dozen 48.00

No. 1—Fitted with noiseless cone-bearing adjustable pulleys, finely enameled complete in box with foot attachment, door hinge attachments and package of hooks; heavy, medium, light or child's cable, complete with Anderson's "Physical Culture," - per dozen 24.00

No. 0—Same as No. 00, except that cable is 1 yd. longer, - - per dozen 18.00

No. 00—With foot attachment, door hinge attachment and package of hooks; heavy, medium, light or child's cable, complete with chart, - per dozen 12.00

ATHLETE.

No. 4—Fitted with self-oiling bearings, extra large, finely finished rosewood pulleys, all metal parts full nickel plated, cork handles, very light and strong throughout; recommended for gymnasium and for strong men; complete with Anderson's "Physical Culture," per dozen, - - - - - $42.00

The Whitely is a complete home gymnasium, composed of elastic cord running over fine pulleys. Requires no floor space and is absolutely noiseless. There are no weights to change and no straps to buckle. No tools of any kind are required. Will last several years. Takes the place of all other forms of exercising apparatus, besides giving a great many movements requiring quick action, such as throwing, bowing, etc. The exerciser is suspended from two small steel hooks in a moment of time, or from the hinges of the door. Can be carried without inconvenience by travelers. Equally suitable for the strongest man and the smallest child. Is especially adapted for the use of ladies.

WHITELY ROWING MACHINES.

The Whitely rowing machine is adopted to home use as it requires only 8 inches width of floor space and, by turning a screw, the telescoping part reduces the length to about 40 inches

The elastic cord is the same as used in the Whitely exerciser, but in heavier tension.

No. 5—Malleable iron frame, rolling seat, telescoping extension, pendulum hung foot rest, strong elastic cord furnishes the resistance and this is in long lengths, running over 4 Whitely pulleys, giving a smooth, uniform action, each, - - - - - - - $12.00

MAPLE DUMB BELLS.

First Quality Maple, Finished in Hard Oil, Polished.

Pounds,	½	¾	1
Per dozen pairs,	$3.36	3.60	4.80
Pounds,	**1½**	**2**	**2½**	**3**
Per dozen pairs,	$5.40	6.00	6.60	7.20

A pair of 1 lb. dumb bells weighs 2 lbs.

IRON DUMB BELLS.

Sizes 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 20 and 25 lbs., - - - per pound $0.05

Sizes 40 and 50 lbs., with steel bar cast in, per pound, - - - - - .08

IRON AND RUBBER QUOITS.

Iron.

Rubber.

English Model, Japanned, Handsomely Painted and Numbered

Inches,	4½	5	5½	6
W't per set (4),	8	12	16	20 lbs.
Per doz. sets,	$8.00	9.00	12.00	15.00

Iron Quoit Pins, - - per dozen pairs $6.00

5½ in., Para rubber, for playing indoors and out, four quoits to a set, per dozen sets 30.00

STRIKING BAG PLATFORMS AND BASKET BALL GOODS.

STRIKING BAG PLATFORMS.

No. 28—LIGHTNING, 36 × 20 × 4½ in. frame, when folded, rim 23 in. diameter, w't 7½ lbs.....each $4 00

The "Lightning" striking-bag platform is made entirely of clear Indiana white oak with a natural oil finish. It is very light, but so securely bolted together as to be amply strong for the hardest service.

The rim is made of hard maple and is attached to the frame by means of strong metal stirrups. Between the stirrups and the frame are rubber cushions or buffers one inch thick. These rubber cushions absorb the shock and deaden the noise. They also serve to make the rim more springy and give the liveliest kind of platform.

The platform can be very quickly attached to the wall and ceiling and is absolutely rigid in position. It can be instantly folded flat for shipment.

STRIKING BAG SWIVELS.

No. 3—DETACHABLE, ball bearing, handsomely ornamented and nickel plated on copper.....per dozen $12.00
ONE DOZEN IN A BOX.

No. 2. No. 1.

No. 2—Wrought steel, nickel plated, ball bearing, with ball and socket, bag can be removed without unscrewing, cord cannot wear.....per dozen $6.00
No. 1—Wrought steel, oxidized, 1 piece, bag can be removed without unscrewing.....per dozen 4.00
ONE DOZEN IN A BOX

STRIKING BAG GLOVES.

No. 96. No. 93.

"Rev-o-noc."

No. 96—"REV-O-NOC" mitts, Benton tan glove kid leather, well made and nicely padded.....per dozen pairs $[illegible] 00
No. 93—"REV-O-NOC" pad, improved knuckle style glove, wine colored sheep skin, correctly padded, per dozen pairs . . 9 00

BASKET BALL BLADDERS.

No. 21—Regulation, pure gum..per dozen $9 00

BASKET BALL SHOES.

No. 25—Black willow calf upper [illegible] sole of red rubber, hand sewed per dozen pairs.....$60.00
ONE PAIR IN A BOX

BOWLING SHOES.

No. 85—[illegible] ve buckskin bal. drab, buckskin sole, very strong shoe, per dozen pairs.....$48.00
ONE PAIR IN A BOX.

FOOT BALL SHOES.

No. 8—Machine sewed, best quality black leather uppers, stiff leather sole, Yale cleats.....per dozen pairs $30.00
No. 10—Good quality black leather, stiff sole, Yale cleats.....per dozen pairs 48.00
ONE PAIR IN A BOX

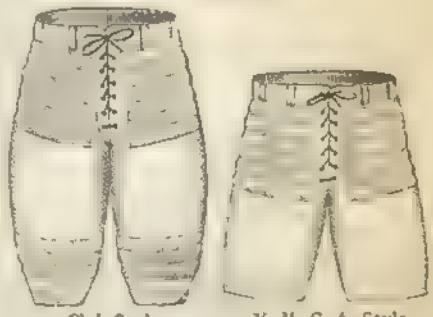
"REV-O-NOC" BASKET BALLS.

No. 11—"REV-O-NOC" OFFICIAL, imported English grain leather, specially tanned, 4 sections, linen thread sewed complete with pure gum bladder, pump, lacing needle and [illegible] lace.....per dozen $60.00
No. 9—"REV-O-NOC," selected pebble grain leather in four sections, linen thread sewed, hand finished, regulation size and weight, complete with pure gum bladder and leather lace, per dozen 48.00
No. 7B—"REV-O-NOC," practice ball, extra heavy special leather, regulation size, complete with pure gum bladder and lace.....per dozen 36 00
No. 5—"REV-O-NOC," medium grade pebble tan leather, complete with pure gum bladder and lace.....per dozen 30.00

"REV-O-NOC" BASKET BALL GOALS.

No. 15—Regulation.....per pair $4.00

"REV-O-NOC" BASKET BALL CLOTHING.



Club Style. Y. M. C. A. Style.

To Order Only.

No. 87—Sateen, either style, per doz. pair $30.00
No. 77—Poplin, either style, " " 24.00
No. 74—Mole khaki, either style " " 21.00
No. 71—Khaki drill, either style " " 15 00
No. 70—White drill, either style " " 12.00
No. 97—Official Uniform, consists of flannel pants, worsted shirt, wool hose, and belt, complete.....each 6 70
No. 95—High School Uniform, consists of flannel pants, cotton shirt, cotton hose, and belt, complete.....each 3 00

Sample and color cards sent on application

ELECTRIC HEATING APPLIANCES.

MONARCHO ELECTRIC HEATERS.

No. 990E—10×6×3 in., covered with eiderdown, complete with 10 foot cord, attachment plug and 4 candle-power, 110 volt lamp, w't 2 lbs. . . . . each $5 00

All No. 990E heaters are sent out with a 4 C. P. 110 volt lamp. If other voltage lamps are wanted, so specify on orders.

If ordered without lamp 20 cents less.

Monarcho heaters can be connected to any lamp socket, and by placing inside of heater a regulating incandescent lamp (4 C. P. recommended) of the proper voltage, it is made ready for use.

Should be in every household where electric current may be had. It takes the place of a hot-water bottle, foot-warmer, and has numerous other uses. It is simple, sanitary and indestructible and the cost of operating is about 1 cent per hour. Where heat and light are wanted at the same time from one socket, No. 16414E Current Tap can be used at a slight additional cost.

ONE IN A BOX.

DEL ELECTRIC CURLING IRONS.

100 to 125 Volts.

No. 500E—Nickel plated, ebonized handle and thumb button length over all 11½ in., complete with plug and 9 ft. of silk covered cord ready to attach to socket . . . each $5 75

These irons are detachable and provide a convenient and simple way of making the Marcel Wave, Pompadour and other stylish coiffures. The cost of dressing the hair with the iron is less than one-half of one cent, and fifty per cent cheaper than gas.

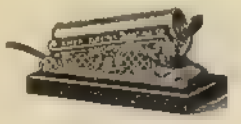
ONE IN A BOX

CURLING IRON HEATERS.

No. 117E—Max. Watt Cons., w't 1 lb. each $3 25

No. 111E—Max. Watt Cons., w't 2 lbs., each $3 50

No. 115E—Max. Watt Cons., w't 2 lbs., each $3 75



No. 150E—Max. Watt Cons., w't 2½ lbs. each $3 75

No. 112E—Max. Watt Cons., w't 2 lbs. each $7 00

No. 116E—Max. Watt Cons., w't 2 lbs., each $9 00

Above heaters finished in nickel and have marble-ized slate base, 6-ft. cord and attachment plug, except No. 116E. Nos. 150E and 116E have automatic switch which turns on the current when the tongs are inserted, and off when withdrawn.

SOLDERING IRONS.

No. 3111E—Standard telephone, length 13 in., tip A diam. of tip ⅞ in., 95 watts, w't 15 oz ★ . . . . . each $9.25

No. 3110E—For small light work, length 12 in., tip C or D diam. of tip ⅞ in., 100 watts w't 1 lb. ★ each $9 25

No. 3121E—For light constant work, length 13 in., tip B, diam. of tip ¾ in., 130 watts, w't 1½ lbs. ★ . . . . . each $9 25

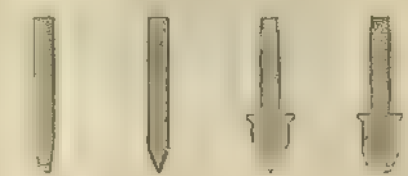
No. 3120E—For all around work, length 12 in., tip C or D, diam. of tip 1 in., 150 watts, w't 1½ lbs ★ . . . . . each $9.25

No. 3131E—For manufacturers' use, length 14 in., tip B, diam. of tip ¾ in., 240 watts, w't 2 lbs. ★ . . . . . each $11.00

No. 3130E—Length 14 in., tip C or D, diam. of tip 1⅛ in. 300 watts, w't 2½ lbs ★ . each $11.00

No. 3140E—Length 16 in., tip C or D, diam. of tip 1⅝ in., 425 watts, w't 4½ lbs ★. . . . . each $16 00

COPPER TIPS.



A Shape. B. Shape. C. Shape. D Shape.

No. 31110E—A shape, 4 oz. ★	each	$0 70
No. 31100E—C or D shape, 4½ oz. ★	"	1 50
No. 31210E—B shape, 5½ oz.	"	75
No. 31200E—C or D shape, 8 oz. ★ . .	"	1 60
No. 31310E—B shape, 10 oz.	"	80
No. 31300E—C or D shape, 14 oz. ★ .	"	2 50
No. 31400E—C or D shape, 1½ lbs. ★	"	1 00

NOTE—A or B tips should not be used on irons designed for C or D tips and vice versa. An A tip can be changed into a B tip or a D tip into a C tip, by merely filing it down.

★*FOR SHIPMENT FROM FACTORY ONLY. VOLTAGE DESIRED MUST BE SPECIFIED IN ORDERING.*

FOLDING PAILS, MINNOW TRAPS, TROUT BASKETS, ETC.

FOLDING WATER PAILS.

No. 4G—6 qt., single, folding into 11½×5½×2½ in., waterproof canvas metal parts of rust proof spring steel rigid, portable, strong, w't per doz. 20 lbs.....per dozen $18.00

ONE IN A BOX

No. 12G—10 qt., single, folding into 12½×5½×2½ in., waterproof canvas metal parts of rust proof spring steel, rigid, portable, strong, w't per doz. 23 lbs.....per dozen $27.20

ONE IN A BOX.

No. 5G—10 qt., single, folding into 12½×5½×2½ in., waterproof canvas metal parts of rust proof spring steel, fitted with splash guard, strainer and spout, w't per doz. 25 lbs., per dozen $36 40

ONE IN A BOX.

FOLDING MINNOW BUCKETS.

No. 08—8 qt., oval, single, folding into 13×5½×2½ in., heavy waterproof canvas, metal parts of rust proof spring steel, top fitted with metal eyelets for ventilation, w't per doz 24 lbs.....per dozen $36 40

ONE IN A BOX

No. 010—10 qt., oval, single, folding into 15×5½×2½ in., heavy waterproof canvas, metal parts of rust proof spring steel, top fitted with metal eyelets for ventilation, w't per doz. 27 lbs.....per dozen $45 00

These buckets are equally good for frogs, grasshoppers, crickets, etc., and insure long life to bait.

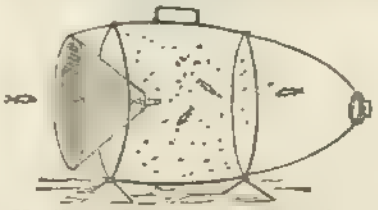
ONE IN A BOX.

MINNOW TRAPS.

No. 70—Individual, 9½ in. long, 13 in. in circumference, flint glass body, galvanized wire end, w't per doz. 20 lbs., per dozen..... $12.00

A minnow trap that remains under water while fishing, insuring live minnows when wanted, small and easy to carry, strongly made.

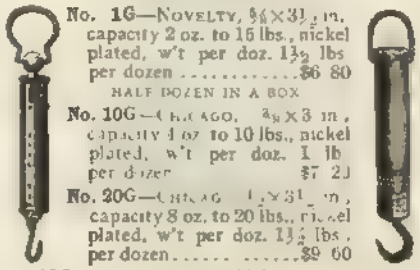
ONE IN A BOX.



No. 85—Heavy flint glass, handle and legs galvanized metal, length 12 in., circumference 24 in., w't per doz. 24 lbs.. , per dozen $37 50

ONE IN A WOODEN BOX.

FISH SCALES.



No. 1G—Novelty, ⅝×3½ in., capacity 2 oz. to 15 lbs., nickel plated, w't per doz. 1½ lbs per dozen $6 80

HALF DOZEN IN A BOX

No. 10G—Chicago, ⅞×3 in., capacity 4 oz. to 10 lbs., nickel plated, w't per doz. 1 lb per dozen $7 20

No. 20G—Chicago, 1×3½ in., capacity 8 oz. to 20 lbs., nickel plated, w't per doz. 1½ lbs., per dozen.....$9 60

NO. 10G, ONE DOZEN, NO. 20G, HALF DOZEN IN A BOX.

TROUT BASKETS.

Split Willow Body.

Nos.....	20	21	22	23	24
Capacity...	7	10	13	19	25 lbs.
W't per doz.	2	3	4	6	8 lbs
Per dozen..	$14 40	16 80	20 60	23.50	31.20

Best Willow, with Nickel Plated Clasp.

Nos.....	11	12	13
Capacity.....	13	20	25 lbs.
W't per doz.....	8	10	15 lbs.
Per dozen.....	$28 00	33 00	38 40

REFRIGERATOR BASKETS.

No. 40—Hawkeye, 14×9×7 in., rattan, metal lined with layer of asbestos and felt between, ice compartment at one end which is easily removed, lid made same as body of basket, heavy felt being piped all around the edges making it air tight when straps are fastened lining is rust proof, top and handles polished, w't per doz. 96 lbs., per dozen $64.00

No. 41—18×10×8 in., w't per doz. 108 lbs., otherwise same as No 40, per dozen 76 80

No 42—20×13×10 in., w't per doz. 120 lbs., otherwise same as No 40, per dozen..... $3.20

BAIT BOX STRAPS.

No. 9—1½×32 to 40 in., nickel buckle, per dozen..... $1.60

BASKET STRAPS.

No. 10—4 in. web shoulder piece, ⅞ in. leather straps with nickel trimmings per dozen $4 00

No. 8—1½ in. webbing over shoulder ¾ in. leather straps nickel buckles, per dozen $2 40

MOSQUITO SHIELDS.

No. 7—Fine quality close mesh netting, cloth covered steel ribs, edge weighted with shot .....per dozen $9 00

A sure protection from mosquitoes, gnats, black sand and horse flies, an indispensable article of camp outfit by night or day, in localities infested with these insects.

HALF DOZEN IN A BOX.

MINNOW BUCKETS.

MINNOW AND FROG.

No. 101G—1 qt., round single, perforated hinged cover self-locking, body lacquered deep blue, cover rich gold, w't per doz. 5 lbs.....per dozen $ 2 00
No. 102G—2 qt., w't per doz. 6 lbs., otherwise same as No. 101G, per dozen 2.40
No. 108½G—8 qt., round single, perforated hinged and hasped self-locking cover, top edge reinforced, finished in rich dark green enamel with gold band and decorations, w't per doz. 21 lbs., per dozen..... 9.00
No. 110½G—10 qt., w't per doz. 25 lbs., otherwise same as No. 108½G, per dozen..... 10.50

ROUND, INSERT.

No. 106G—6 qt., perforated tin insert, no cover on outside pail, non-floating, hinged perforated cover on insert, sunk ice pan top, finished in deep blue gold band and decorations, w't per doz. 25 lbs.....per dozen $ 9.30
No. 108G—8 qt., w't per doz. 28 lbs., otherwise same as No. 106G, per dozen..... 10.70
No. 110G—10 qt., w't per doz. 36 lbs., otherwise same as No. 106G, per dozen..... 12.80
No. 112G—12 qt., w't per doz. 40 lbs., otherwise same as No. 106G, per dozen..... 14 40

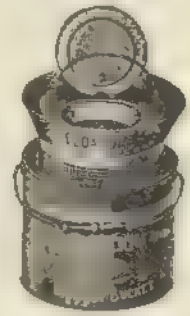
ROUND, FLOATING.

No. 508G—8 qt., galvanized wire solid bottom floating insert, rim to protect minnows when removing from outside bucket hinged perforated insert cover, no cover on outside pail, finished in medium green and gold decorations, sunk ice pan top, w't per doz. 44 lbs. per dozen..... $16.40
No. 510G—10 qt., w't per doz. 49 lbs., otherwise same as No. 508G per dozen 18.40
No. 512G—12 qt., w't per doz. 46 lbs., otherwise same as No. 510G, per dozen 22.40

SPECIAL ROUND FLOATING.

No. 408G—8 qt., perforated hinged top to both outside and inside bucket, floating galvanized wire insert, solid bottom pan to save minnows when transferred, finish rich dark green with gold trimmings, w't per doz. 35 lbs. ..... per dozen $18.00
No. 410G—10 qt., w't per doz. 43 lbs., otherwise same as No. 408G, per dozen..... 21.00

GALVANIZED ROUND FLOATING.



No. 608G—8 qt., bucket and insert galvanized after being made up, filling up all seams, floating wire insert, sunk ice pan top, solid bottom, perforated cover on insert, no cover on outside pail, finish maroon enamel and gold trimmings, w't per doz. 53 lbs. per dozen..... $20 70
No. 610G—10 qt., w't per doz. 38 lbs., otherwise same as No. 608G, per dozen 23 50

OVAL FLOATING.

No. 808G—8 qt., self-locking hinged perforated cover on perforated tin insert, no cover on outside pail, deep top for the slanting floating insert, convenient for taking out minnows, light green color gold colored insert, w't per doz. 37 lbs.....per dozen $18 80
No. 810G—10 qt., w't per doz. 45 lbs., otherwise same as No. 808G, per dozen 20 00

OVAL FLOATING.

No. 708G—8 qt., floating galvanized wire insert, no cover on outside pail hinged perforated cover on insert, space between top of insert and bucket for ice, solid tin bottom pan, finish medium green nicely decorated, w't per doz. 35 lbs .....per dozen $20.00
No. 710G—10 qt., w't per doz. 40 lbs., otherwise same as No. 708G, per dozen 22 80

OVAL SINGLE.

No. 908G—8 qt., self-locking hinged perforated cover, sunk ice pan top enameled wood bails, entire bucket galvanized after making, closing all seams, w't per doz. 25 lbs.....per dozen $ 9.30
No. 910G—10 qt., w't per doz. 30 lbs., otherwise same as No. 908G, per dozen 11.40

OBLONG FLOATING.

No. 300G—AQUARIUM, 6 in. wide floating galvanized wire insert, perforated hinged top on insert, perforated ice pan top on outside pail, finish enamel green and gold [illegible] of the pail 2½ qt. size of the outer pail [illegible] capacity 2 qt. w't per doz. 52 lbs. per doz. $10 00

This pail is also a minnow trap. The wire netting at one end is made funnel shaped, the end of the funnel coming even with the opening of the float and close to the under side. This gives a bucket and trap combination.

FLOATS, FISH KNIVES AND SCALERS.

FLOATS.

No. 2

No. 3

No. 2—1⅝ in., 2 colors, stained and varnished, without stick.....per gross $1.44

No. 3—1⅝ in., 3 colors, wood, egg shape, stained and varnished, without stick, per gross 2 00

ONE GROSS IN A BOX.

No. 4—1¾ in., 2 colors, wood, egg shape, painted and varnished, with stick, per gross $2 50

ONE-QUARTER GROSS IN A BOX.

Excelsior, Wood, Egg Shape, Painted in Three Colors and Varnished.

Nos.	40	41	42	43	44
Sizes. .. .	1½	1¾	2	2¼	2½ in
Per gross	$2 80	3 00	3.50	4 20	4 80

ONE DOZEN IN A BOX.

Cork, Unbound, Egg Shape, Adjustable, Two Colors, Varnished.

Nos..... ..	301	302	303	304	305
Sizes . ..	1½	1¾	2	2½	3 in
Per gross..	$5 50	7 00	8 80	12 00	20 00

ONE DOZEN IN A BOX

Cork, Barrel Shape, Adjustable, Two Colors, Varnished.

Nos.....	403	404	405	406	407
Sizes..	2	2½	3	3½	4 in.
Per gross .	$7 00	8 20	11 00	13 80	18 00

ONE DOZEN IN A BOX.

FLOATS.

Cork Balls, Unpainted.

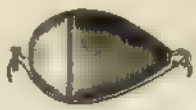
Nos.	503	504	505	506	507	508
Sizes. .	1¼	1¼	1⅝	1¼	1¾	1⅞ in
Per gross	$4 80	5 52	6 00	7 20	9 60	12 60

These floats are natural color and have a hole through center into which a peg can be forced holding line securely in any position desired

ONE DOZEN IN A BOX

No. 75—Bristol, wood, 2 in., brass tube through which line passes, patent snap, per gross.... .....$27 60

ONE DOZEN IN A BOX.



No. 79—Cork, 2½ in., egg shape, two colors and varnished, with brass wire extending through float with spiral ends, metal bushing at top and bottom to prevent wear.....per gross $36 00

On reeling in a strike when the float comes in contact with the end of pole it releases the line in the bottom of float and allows it to slide down line to sinker which effects a sure and safe landing.

ONE DOZEN IN A BOX.

Cork, Thin Taper, Zebra Painted, Assorted Colors.

Nos..... ...	702	703	704	705	706
Sizes	2	3	4	5	6 in.
Per gross $17 20	25 20	38 40	60.00	78.00	

ONE DOZEN IN A BOX.

Adjustable, Cork, Barrel Shape, Pilot Ball, Zebra Painted.

Nos. . . .	801	802	803	803¼
Sizes.....	1¾	2¼	2½	2¾ in.
Per gross $12 00	14 40	16 08	18.00	

Nos.	804	805	806
Sizes.	3	3½	4
Per gross.	..$19 68	21 60	26.40

ONE DOZEN IN A BOX

Porcupine Quill Floats, Bound, with Ring.

Nos.	56	58	58
Sizes.	4	6	8
Per gross.....	$5 00	5 50	7 80

THREE DOZEN IN A BOX.

FISH KNIVES.

No. 55G—Black Diamond, beechwood handle, extra fine quality hand forged blade, warranted, 3, 3½ and 4 in. blades, per dozen..... $4.00

HALF DOZEN IN A BOX.

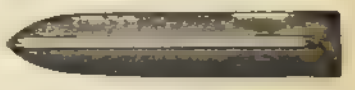
No. 25G—[illegible] beechwood handle, Sandusky pattern, 3 and 4½ in. blades per dozen..... $4.00

HALF DOZEN IN A BOX.

No. 0148G—Cocoa handle, forged steel blade, double edge, leather sheath, per dozen..... $13.00

HALF DOZEN IN A BOX

FISHERMEN'S KNIVES.



No. 10RG—Russell's, 4¼ in. blade, scored cocobolo handle, lap bolster, leather sheath with loop to attach to belt.....per dozen $8 00

ONE DOZEN IN A BOX.

FISH SCALERS.

No. G15—Heavy perforated tin, length 9¼ in., w't per doz. 2½ lbs..per dozen $2.00

HALF DOZEN ON A DISPLAY CARD.

No. 17—1×2 in. steel blade, 5 in. heavy wire handle, w't per doz. 1¼ lbs., per dozen..... $1.60

ONE DOZEN IN A BOX.

FURNISHED LINES.

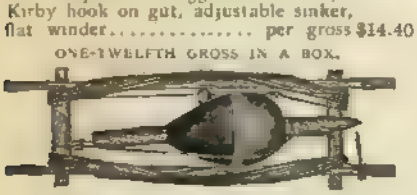
No. 2—12 ft. drab cotton line, 1¾ in. enameled three colored wood egg float, No. 1 Kirby ringed hook, shot sinker, stained wood winder.....per gross $3.60
ONE-SIXTH GROSS IN A BOX.

No. 9—12 ft. drab cotton line, 1¼ in. three colored adjustable wood egg float, No. 1 Kirby ringed hook, shot sinker, patent winder.....per gross $4.80
ONE-QUARTER GROSS IN A BOX.

No. 4—15 ft. drab cotton line, 1¾ in. three colored patent adjustable wood egg float, No. 1/0 Kirby ringed hook, shot sinker, stained flat winder, per gross $6 00
ONE-SIXTH GROSS IN A BOX.

No. 8—15 ft. drab cotton line, 3¾ in. patent adjustable barrel float, No. 1/0 Kirby hook on double gut, shot sinker, stained wood winder.....per gross $10.40
ONE-QUARTER GROSS IN A BOX.

No. 11—15 ft. good quality line, adjustable striped cork egg float No. 1/0 Kirby hook on gut, adjustable sinker, flat winder..... per gross $14.40
ONE-TWELFTH GROSS IN A BOX.



No. 5—15 ft drab cotton line 1¼ in. three colored adjustable wood egg float, No. 1/0 Kirby ringed hook, shot sinker, new style reel winder.....per gross $7.20
ONE-QUARTER GROSS IN A BOX.

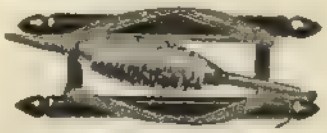
No. 7½—15 ft. green cable line, Kirby hook split shot sinker, 1 in. polished cork ball float, on black enameled acron reel winder .....per gross $9.12
ONE-TWELFTH GROSS IN A BOX

No. 102—15 ft. green line, assorted egg and barrel adjustable wood floats, No. 1/0 Kirby hook on double gut, patent adjustable sinker, black enameled reel winder ..... per gross $10.40

No. 202—15 ft. green line, assorted egg and barrel adjustable cork floats, No. 1/0 Kirby ringed hook, adjustable sinker, black enameled reel winder, per gross 11 20
ONE-TWELFTH GROSS IN A BOX.

No. 10—15 ft. hard twisted cotton line, assorted egg and barrel adjustable floats, No. 1/0 Kirby hook on double gut, adjustable sinker, black enameled reel winder.....per gross $12 00

No. 12—15 ft. braided black and white silkaline line, assorted egg and barrel adjustable floats, No. 1/0 Kirby hook on double gut, adjustable sinker, enameled reel winder..... per gross 16.80
ONE-TWELFTH GROSS IN A BOX.

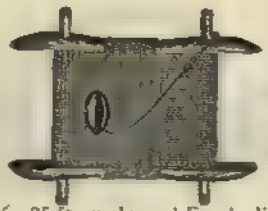


No. 256½—60 ft., green finish, heavy cable line, heavy sinker and hook on wood frame reel ..... per gross $15 12
ONE-TWELFTH GROSS IN A BOX.

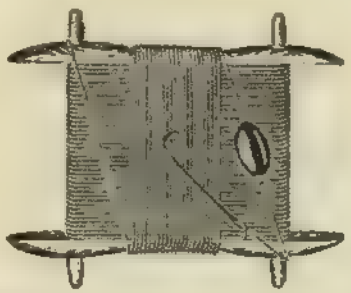
No. 263½—15 ft., braided linen, mottled green and brown, snelled hook, No. 1 adjustable ringed sinker, 2¼ in. barrel, natural finish adjustable cork floats, assorted on white enameled acron reel winder ..... per gross $21.60

No. 153½—15 ft., braided silk line, snelled hook, No. 1 adjustable ringed sinker, 2¼ in. barrel, natural finish adjustable cork float on black enamel acron reel .....per gross 24 00
ONE-TWELFTH GROSS IN A BOX.

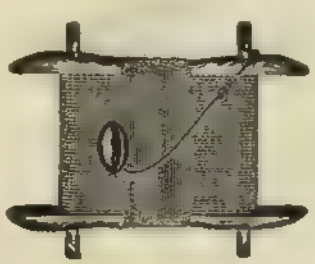
No. 153½—15 ft., finest quality braided silk line black and white, snelled hook, No. 1 adjustable ringed sinker, 2 in. barrel hollow wood float, enameled in three colors, on white enameled acron reel.....per gross $48 00
ONE-TWELFTH GROSS IN A BOX.



No. 150½—25 ft., undressed Eureka line, Kirby hook, egg sinker on frame reel winder.....per gross $6 00
ONE-QUARTER GROSS IN A BOX.



No 155—30 ft drab Eureka line, No. 6 egg sinker, No. 1/0 Kirby ringed hook, patent reel winder, natural finish, per gross..... $7 20
ONE-TWELFTH GROSS IN A BOX.



No 175—30 ft. hard twisted green line, No. 6 egg sinker, No. 1/0 Kirby hook on gut, black enameled reel winder, per gross $10.32

No. 280—60 ft. heavy hard twisted green line, No. 5 egg sinker, No. 1/0 Kirby hook on gut, large black enameled winder..... per gross 19.20
ONE-TWELFTH GROSS IN A BOX

No. 14—15 ft. braided silkaline line, 2½ in. adjustable striped egg cork float, No. 1/0 Kirby hook on double gut, adjustable sinker, black enameled reel winder.....per gross $21 60

No. 16½—60 ft., braided line, mottled brown and green, snelled hook, No. 1 adjustable ringed sinker, 2 in. egg stick float, on black enameled reel, per gross 27 60
ONE-TWELFTH GROSS IN A BOX

ELECTRIC FLASHLIGHTS.

MINIATURE.

2⅜×1⅜×¾ Inches, Brass Case, Heavily Nickel Plated and Highly Polished, Imitation Ruby Contact Button.

No. 6661E—Fitted with No. 650E Merchlor battery and No. 1480E-2½ volt Osram bulb. . . . . each $1 25
No. C6661E—Fitted with No. 1480E-2½ volt Osram bulb, *without battery*, each. 1 00
No. 650E—Extra Merchlor batteries, each. 25
No. 1480E—Extra Osram bulbs, 2½ volt. . . . . each 60

ONE IN A BOX.

2⅜×2×¾ Inch, Brass Case, Heavily Nickel Plated and Highly Polished, Imitation Ruby Contact Button.

No. 6662E—Fitted with No. 651E Merchlor battery and No. 1481E-3½ volt Osram bulb . . . . . each $1 50
No. C6662E—Fitted with No. 1481E-3½ volt Osram bulb, *without battery*, each. 1.20
No. 651E—Extra Merchlor batteries, each. 30
No. 1481E—Extra Osram bulbs 3½ volt . . . . . each 60

ONE IN A BOX.

COAT POCKET.

5×3⅜×1⅜ Inches, Metal Case, Leatherette Covered, Nickel Trimmings.

No. 1901E (35E)—Fitted with No 504E battery and No. 1303SE bulb, w't 20 oz. each $1 25
No. C1901E—Fitted with No. 1303SE bulb, *without battery* each 90
No. 504E 350E—Extra batteries sunken cell. . . . . each 35
No. 1303SE (1350E) Extra bulbs, 3½ volt carbon. . . . . each 35

5×2⅛×1⅜ Inches, Metal Case, Cloth Covered, Nickel Trimmings.

No. 1951E—Fitted with No. 593E battery and No. 1497E-2½ volt Osram bulb, w't 17 oz. . . . . each $1 50
No. C1951E—Fitted with No. 1497E-2½ volt Osram bulb, *without battery* . . . each 1 20
No. 593E—Extra batteries . . . . . " .30
No. 1971E—Fitted with No. 693E Merchlor battery and No. 1497E-2½ volt Osram bulb, w't 17 oz. . . . . each 1.75
No. C1971E—Fitted with No. 1497E-2½ volt Osram bulb, *without battery*, each. 1.40
No. 693E—Extra Merchlor batteries, each 35
No. 1497E—Extra Osram bulbs, 2½ volt, each. 50

ONE IN A BOX.

VEST POCKET.

3½×2⅝×1 Inch, Metal Case, Cloth Covered, Nickel Trimmings.

No. 6502E (17E)—Fitted with No. 502E battery and No. 1202E-3½ volt carbon bulb, w't 8 oz. . . . . each $0 90
No. C6502E—Fitted with No. 1202E-3½ volt carbon bulb, *without battery*, each. 60
No. 502E (180E)—Extra batteries, sunken cell. . . . . each 30
No. 1202E (118E)—Extra carbon bulbs, 3½ volt. . . . . each 35

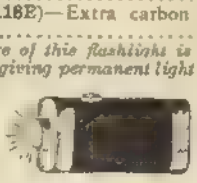
3½×2⅝×1 Inch, Metal Case, Alligator Covered, Nickel Trimmings.

No. 6501E (18E)—Fitted with No. 502E battery and No. 1202E-3½ volt carbon bulb, w't 8 oz. . . . . each $1 10
No. C6501E—Fitted with No. 1202E-3½ volt carbon bulb, *without battery*, each. 80
No. 502E (180E)—Extra batteries, sunken cell. . . . . each 30
No. 1202E (118E)—Extra carbon bulbs 3½ volt. . . . . each .35

3½×2⅝×1 Inch, Fibre Case, Nickel Trimmings.

No. 6509E (25E)—Fitted with No. 502E battery and No. 1202E-3½ volt carbon bulb, w't 8 oz. . . . . each $1 25
No. C6509E—Fitted with No. 1202-3½ volt carbon bulb, *without battery*, each. 95
No. 502E (180E)—Extra batteries, sunken cell. . . . . each 30
No. 1202E (118E)—Extra carbon bulbs, 3½ volt. . . . . each .35

The feature of this flashlight is that it has a snap switch, giving permanent light when desired.



3½×1×1⅜ Inch, Metal Case, Cloth Covered, Nickel Trimmings.

No. 6602E—Fitted with No. 592E battery and No. 1497E-2½ volt Osram bulb, w't 6 oz. . . . . each $1 25
No. C6602E—Fitted with No. 1497E-2½ volt Osram bulb, *without battery*, each. 1.00
No. 592E—Extra batteries. . . . . each 25
No. 6802E—Fitted with No. 692E Merchlor battery and No. 1497E-2½ volt Osram bulb, w't 6 oz. . . . . each 1 50
No. C6802E—Fitted with No. 1497E-2½ volt Osram bulbs, *without battery* each. 1 15
No. 692E—Extra Merchlor batteries, each. 35
No. 1497E—Extra Osram bulbs, 2½ volt. . . . . each .50

ONE IN A BOX.

VEST POCKET.

3½×2⅝×1 Inch, Fibre Case, Nickel Trimmings.

No. 6809E—Fitted with No. 603E Merchlor battery and No. 1490E-3½ volt Osram bulbs, w't 8 oz. . . . . each $1 75
No. C6809E—Fitted with No. 1490E-3½ volt Osram bulb, *without battery*, each. 1 40
No. 603E—Extra Merchlor batteries, each 35
No. 1490E—Extra Osram bulbs 3½ volt . . . . . each 50

EVER READY.

5×1⅜ Inches, Fibre Cover, Nickel Trimmings.

No. 2702E—Fitted with No. 591E battery and No. 1497E-2½ volt Osram bulb, w't 6 oz. . . . . each $1 50
No. C2702E—Fitted with No. 1497E-2½ volt Osram bulb, *without battery*, each 1 25
No. 591E—Extra batteries. . . . . each 25
No. 2902E—Fitted with No. 691E Merchlor battery and No. 1497E-2½ volt Osram bulb, w't 6 oz. . . . . each 1 75
No. C2902E—Fitted with No. 1497E-2½ volt Osram bulb, *without battery*, each 1.40
No. 691E—Extra Merchlor batteries, each 35
No. 1497E—Extra Osram bulbs, 2½ volt. . . . . each 50

6½×1½ Inches, Fibre Cover, Nickel Trimmings, Glove Fastener Contact.

No. 2704E—Bulldog, fitted with No. 590E battery and No. 1497E-2½ volt Osram bulb, w't 13 oz. . . . . each $2 00
No. C2704E—Bulldog, fitted with No 1497E-2½ volt Osram bulb, *without battery* . . . . . each 1 75
No. 590E—Extra batteries. . . . . " 25
No. 2904E—Bulldog, fitted with No. 690E Merchlor battery and No. 1497E-2½ volt Osram bulb, w't 13 oz. . . . each 2.25
No. C2904E—Bulldog, fitted with No 1497E-2½ volt Osram bulb, *without battery* . . . . . each 1.90
No. 690E—Extra Merchlor batteries, each 35
No. 1497E—Extra Osram bulbs, 2½ volt, each 50

NEW COMET.

8½×1⅜ Inches, Metal Case, Cloth Cover, Nickel Trimmings Continuous or Flash.

No. 2526E (55E)—Fitted with No. 505E battery and No. 1303E-3½ volt carbon bulb, w't 16 oz. . . . . each $1 25
No. C2526E—Fitted with No. 1303E-3½ volt carbon bulb, *without battery* . . . . . each 95
No. 505E (10E)—Extra batteries. . . " 30
No. 1303E (110E)—Extra carbon bulbs, 3½ volt . . . . . each .35

ONE IN A BOX

TEN FLASHLIGHT CASES IN A STANDARD PACKAGE.

ELECTRIC FLASHLIGHTS.

For Special Information, see page 2506

EVER READY.

8½×1⅝ Inches, Leatherette Cover, Nickel Trimmings, Permanent Contact.

No. 2504E (1E)	—Fitted with No. 505E battery and No. 1303E-3½ volt carbon bulb, w't 20 oz ..... each	$1 50
No. C2504E	—Fitted with No. 1303E-3½ volt carbon bulb, *without battery* ..... each	1 20
No. 1303E (110E)	—Extra carbon bulbs, 3½ volt ..... each	35
No. 2706E	—Fitted with No. 505E battery and No 1493E-3½ volt Osram bulb, w't 20 oz ..... each	2 00
No. C2706E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery* ..... each	1 70
No. 505E (10E)	—Extra batteries.. "	30
No. 2906E	—Fitted with No. 605E Merchlor battery and No. 1493E-3½ volt Osram bulb, w't 20 oz., each	2 25
No. C2906E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery* ..... each	1 85
No. 605E	—Extra Merchlor batteries ..... each	40
No. 1493E	—Extra Osram bulbs, 3½ volt ..... each	.50

11×1⅝ Inches, Leatherette Cover, Nickel Trimmings, Permanent Contact.

No. 2506E (2E)	—Fitted with No. 511E battery and No. 1303E-3½ volt carbon bulb, w't 21 oz ..... each	$2 00
No. C2506E	—Fitted with No. 1303E-3½ volt carbon bulb, *without battery*, each	1 70
No. 1303 (110E)	—Extra carbon bulbs, 3½ volt ..... each	35
No. 2708E	—Fitted with No. 511E battery and No. 1493-3½ volt Osram bulb, w't 21 oz ..... each	2 50
No. C2708E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery*, each	2 20
No. 511E (20E)	—Extra batteries..each	30
No. 1493E	—Extra Osram bulbs, 3½ volt ..... each	50

13×1⅝ Inches, Leatherette Cover, Nickel Trimmings, Permanent Contact.

No. 2503E (3E)	Fitted with No. 515E battery and No. 1365E-5½ volt carbon bulb, w't 24 oz.....each	$2 50
No. C2503E	—Fitted with No. 1365E-5½ volt carbon bulb, *without battery* ..... each	2 00
No. 1365E (130E)	—Extra carbon bulbs, 5½ volt ..... each	35
No. 2710E	—Fitted with No. 515E battery and No. 1495E-5½ volt Osram bulb, w't 24 oz ..... each	3.00
No. C2710E	—Fitted with No. 1495E-5½ volt Osram bulb, *without battery*..... each	2 50
No. 515 (30E)	—Extra batteries..each	50
No. 1495E	—Extra Osram bulbs, 5½ volt..... each	50

ONE IN A BOX.

IMPROVED.

8½×1⅝ Inches, Fibre Cover, Nickel Trimmings, Improved Catch.

No. 2510E (4½E)	—Fitted with No. 505E battery and No. 1303E-3½ volt carbon bulb, w't 17 oz .. each	$2 00
No. C2510E	—Fitted with No. 1303E-3½ volt carbon bulb, *without battery*..... each	1 70
No. 1303E (110E)	—Extra carbon bulbs, 3½ volt ..... each	.35
No. 2712E	—Fitted with No. 505E battery and No. 1493E-3½ volt Osram bulb, w't 17 oz ..... each	2 50
No. C2712E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery* ..... each	2.20
No. 505E (10E)	—Extra batteries.. "	.30
No. 2912E	—Fitted with No. 605E Merchlor battery and No. 1493E-3½ volt Osram bulb, w't 17 oz.....each	2 75
No. C2912E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery*..... each	2.35
No. 605E	—Extra Merchlor batteries ..... each	.40
No. 1493E	—Extra Osram bulbs, 3½ volt..... each	.50

11×1⅝ Inches, Fibre Cover, Nickel Trimmings Improved Catch.

No. 2512E (5½E)	—Fitted with No. 511E battery and No. 1303E-3½ volt carbon bulb, w't 21 oz ..... each	$2 50
No. C2512E	—Fitted with No. 1303E-3½ volt carbon bulb, *without battery*..... each	2 20
No. 1303E (110E)	—Extra carbon bulbs, 3½ volt ..... each	.35
No. 2714E	—Fitted with No. 511E battery and No. 1493E-3½ volt Osram bulb, w't 23 oz ..... each	3 00
No. C2714E	—Fitted with No. 1493E-3½ volt Osram bub, *without battery* ..... each	2.70
No. 511E (20E)	—Extra batteries.. "	.30
No. 1493E	—Extra Osram bulbs, 3½ volt..... each	.50

13×1⅝ Inches, Fibre Cover, Nickel Trimmings, Improved Catch.

No. 2514E (6½E)	—Fitted with No. 515E battery and No. 1365E-5½ volt carbon bulb, w't 25 oz .. ..each	$3 00
No. C2514E	—Fitted with No. 1365E-5½ volt carbon bulb, *without battery*..... each	2 50
No. 1365E (130E)	—Extra carbon bulbs, 5½ volt ..... each	.35
No. 2716E	—Fitted with No. 515E battery and No. 1495E-5½ volt Osram bulb, w't 27 oz ..... each	3 50
No. C2716E	—Fitted with No. 1495E-5½ volt Osram bulb *without battery*..... each	3 00
No. 515E (30E)	—Extra batteries.. "	50
No. 1495E	—Extra Osram bulbs, 5½ volt..... each	.50

ONE IN A BOX

MINERS'.

8½×1⅝ Inches, Fibre Cover, Nickel Trimmings, Large Lens, Highly Polished Reflector.

No. 2518E (4½E)	—Fitted with No. 505E battery and No. 1303E-3½ volt carbon bulb, w't 22 oz... each	$2 75
No. C2518E	—Fitted with No. 1303E-3½ volt carbon bulb, *without battery* ..... each	2 45
No. 1303E (110E)	—Extra carbon bulbs, 3½ volt ..... each	.35
No. 2719E	—Fitted with No. 505E battery and No. 1493E-3½ volt Osram bulb, w't 20 oz ..... each	3 50
No. C2719E	—Fitted with No 1493E-3½ volt Osram bulb, *without battery* ..... each	3.20
No. 506E (10E)	—Extra batteries.. "	.30
No. 2919E	—Fitted with No. 605E Merchlor battery and No. 1493E-3½ volt Osram bulb, w't 20 oz.....each	3.75
No. C2919E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery*..... each	3.35
No. 606E	—Extra Merchlor batteries..... each	.40
No. 1493E	—Extra Osram bulbs, 3½ volt..... each	.50

11×1⅝ Inches, Fibre Cover, Nickel Trimmings, Large Lens, Highly Polished Reflector.

No. 2520E (16½E)	—Fitted with No. 511E battery and No. 1303E-3½ volt carbon bulb, w't 26 oz..... each	$3.25
No. C2520E	—Fitted with No. 1303E-3½ volt carbon built, *without battery*..... each	2.95
No. 1303E (110E)	—Extra carbon bulbs, 3½ volt ..... each	.35
No. 2721E	—Fitted with No. 511E battery and No. 1493E-3½ volt Osram bulb w't 24 oz ..... each	4.00
No. C2721E	—Fitted with No. 1493E-3½ volt Osram bulb, *without battery*..... each	3.70
No. 511E (20E)	—Extra batteries.. "	.30
No. 1493E	—Extra Osram bulbs, 3½ volt..... each	.50

13×1⅝ Inches, Fibre Cover, Nickel Trimmings, Large Lens, Highly Polished Reflector.

No. 2522E (16½E)	—Fitted with No. 515E battery and No. 1365E-5½ volt carbon bulb, w't 31 oz.....each	$3 75
No. C2522E	—Fitted with No. 1365E-5½ volt carbon bulb, *without battery* ..... each	3.25
No. 1365E (130E)	—Extra carbon bulbs, 5½ volt..... each	.35
No. 2723E	—Fitted with No. 515E battery and No. 1495E-5½ volt Osram bulb, w't 28 oz..... each	4 50
No. C2723E	—Fitted with No. 1495E-5½ volt Osram bulb, *without battery* ..... each	4.00
No. 515E (30E)	—Extra batteries each	.50
No. 1495E	—Extra Osram bulbs, 5½ volt..... each	.50

ONE IN A BOX.

The batteries are manufactured by an entirely new principle in dry cells The tiny battery in combination with the Osram bulb, will give greater light, longer service and will stand much longer on the shelf without losing strength than old style batteries several times larger.

The lamps furnished in these lights have filaments of Osram which is a perfected Tungsten.

The filament is finely drawn metal, cross-sectioned to allow great length of wire at a maximum concentration of light. The high point of fusibility permits of greater incandescence than ever before obtained The bulbs are mushroom shaped and tipless. The lower half is of opal glass which acts as a reflector and owing to the wonderfully brilliant, white light a lens is entirely unnecessary.

TEN FLASHLIGHT CASES IN A STANDARD PACKAGE

BRACKETS AND PORCH SUPPORTS.

STAIR RAIL BRACKETS.

No. 5803—3½ in. *projection*, enameled cast iron, w't per doz. 5½ lbs. per dozen $2.50

No. 5805—5 in. *projection*, enameled cast iron, w't per doz. 9 lbs.....per dozen 2.80

This bracket can be adjusted to any angle, is strong, easily adjusted, and quickly applied. Length given is the length from wall to center of rail.

HALF DOZEN IN A BOX

No. 80—2½ in., electro plated, old copper finish, one piece heavy cast iron, w't per doz. 6 lbs.....per dozen $2.75

ONE DOZEN IN A BOX

PORCH SUPPORTS.

No. 3—Japanned, diameter 3¾ in., height 1¾ in., w't per doz. 11 lbs...per dozen $1.20

LOOSE.

No. 4—Japanned, extreme length 6 in., height 1¾ in., w't per doz. 8½ lbs. per dozen..... $1 20

LOOSE.

FLOWER POT BRACKETS.

No. 1760—Walnut bronzed iron, 5 in. arm, 4 in. shelf, w't per doz. 6½ lbs., per dozen..... $1 20

HALF DOZEN IN A BOX, WITH SCREWS

No. 2000—Walnut bronzed iron, 7 in. arm, 4½ in. shelf, w't per doz. 11 lbs., per dozen..... $2 10

ONE-QUARTER DOZEN IN A BOX, WITH SCREWS.

FLOWER POT BRACKETS.

No. 1872—Walnut bronzed iron, 9 in. arm, 5½ in. shelf, w't per doz. 16 lbs., per dozen..... $2 95

ONE-QUARTER DOZEN IN A BOX, WITH SCREWS.

No. 2090—Cast iron, enameled black and green inlaid, 12 in. arm, 5½ and 4 in. shelves, w't per doz. 26 lbs..per dozen $5.35

ONE-QUARTER DOZEN IN A BOX, WITH SCREWS.

No. 2136—Walnut bronzed iron, two 9 in. arms, 5 in. shelves, w't per doz. 28 lbs. ...per dozen $5 50

ONE-QUARTER DOZEN IN A BOX, WITH SCREWS.

No. 2408—Walnut bronzed iron, three 8 in. arms, 5½ in. shelves, w't per doz. 48 lbs., per dozen $10.75

ONE IN A BOX, WITH SCREWS.

GRASS SUITS AND BLINDS.

HUNTING SUITS.

Grass Hunting Suits, - each $1.50

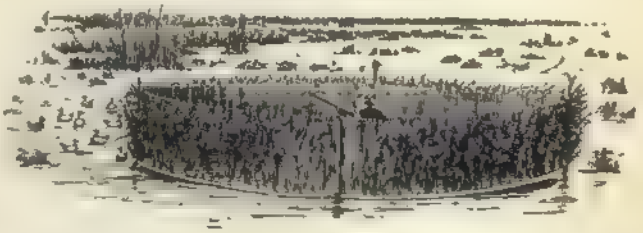
For wild goose, duck and all kinds of shore bird shooting; made of long, tough marsh grass, into cape coat with hood. Weigh less than 4 lbs.; are convenient to wear and shoot from. Make good waterproofs in rainy weather; are easily packed and carried. Hunters appreciate the value of these suits, as no blind or bough house is necessary when shooting on marshes.

SHORE BLINDS.

Grass Shore Blinds, size 6×3 ft., - per piece $1.50

More convenient for certain kinds of shooting than a grass suit, as it can be made as large as desired and give ample room for a comfortable seat. Are supplied with stocks to be fastened to the blinds, which can be set up anywhere. Usually two pieces make a blind.

BOAT BLINDS.



Grass Boat Blinds, size 5 ft. 10 in. × 27 in., - per piece $1.50

Made to resemble wild rice rushes, marsh grass etc., are light in weight, each piece rolling in a small roll. Each piece is supplied with sticks which fit into screw eyes screwed in rail of boat, making them easily adjusted. Usually four pieces are sufficient to go around an ordinary boat. Some use blinds only on one side of boat.

HUNTING AND OUTDOOR LAMPS.

HUNTING.

No. 357—Ferguson's, black, japanned, height 8½ in., depth 2¾ in., face 3¾ in., w't 17 oz., without head attachment. - - - - - - - - each $7.50

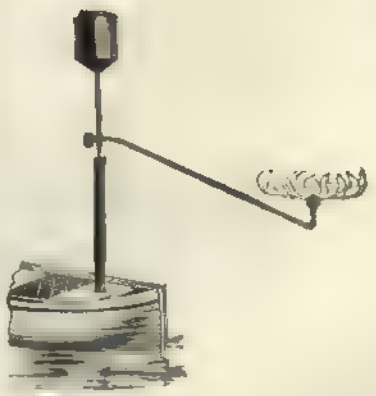
Extra Head Attachment, - - - - - - - - " 3.75

ONE IN A BOX

ACETYLENE HUNTING LAMPS.

No. 90 6×2½ in., japanned acetylene gas generator, adjustable water feed, screw off base steel loop for belt, 4 in. nickel plated parabolic reflector, convex glass, hinged front door to shut off light, lava burner, heavy leather head strap, 3 ft. of ¼ in. rubber tubing, w't complete 1⅔ lbs., - - - - - - - each $8.00

OUTDOOR.



No 1. Baker.

No 0. Chicago.

No. 1 Baker, 1 burner w't 6 lbs - - - - each $3.40

No. 0—Chicago, 1 gal. tank 1 burner, w't 3 lbs., - " 1 75

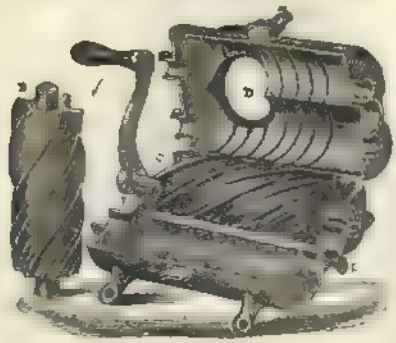
No. 2—Chicago, 1 gal. tank, 2 burners, w't 5 lbs., " 3.75

Burners, for Baker lamps, - - - - " 1 50

Burners, for Chicago lamps, - - - - " 1.25

MEAT CHOPPERS, CHEESE CUTTERS, PRESSES, ETC.

HALE'S MEAT CHOPPERS.

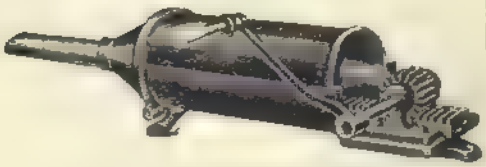


Cast Iron, Japanned Outside.

Nos	111	112	113
Cylinder	5	6	7½ in.
W't per doz.	80	138	216 lbs
Per dozen	$27 00	33 00	45.00

NOS. 111 AND 112, HALF DOZEN; NO. 113, ONE THIRD DOZEN IN A CASE

RAILROAD SAUSAGE STUFFERS.



Japanned Iron Base, Tin Cylinder.

No. 5—3½×8 in. cylinder, family size, w't per doz. 130 lbs. .... per dozen $15.00

HALF DOZEN IN A CASE

PERRY'S SAUSAGE STUFFERS.

Cast Iron Japanned, Tin Spout.

No. 1—Diam. of cylinder 3½ in., handle 22 in., w't per doz. 122 lbs. per dozen $15.00

No. 0—Diam. of cylinder 4½ in., handle 25 in., w't per doz. 190 lbs. per dozen 21.00

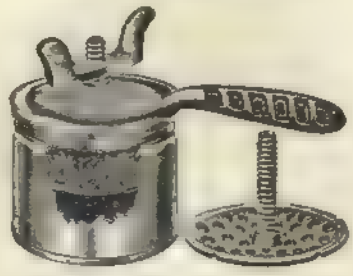
HALF DOZEN IN A CASE.

SMOKED BEEF SHAVERS.

No. 23—ENTERPRISE. 16 in. channel, 12 in. blade, improved, adjustable, japanned with self sharpening device w't 20½ lbs. each $8 00

The knife works like a pendulum allowing the attendant to adjust the feed to be regulated for slices from 1⅛ in. to a tissue thickness.

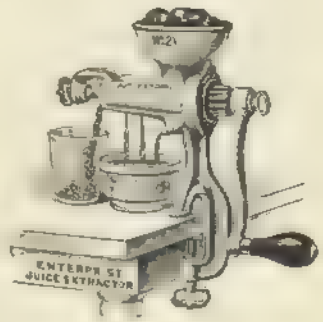
BEEF TEA PRESSES.



No. 43—Nickel plated frame, 3×2½ in., tin cylinder, open bottom, for extracting juice from meat w't per doz. 12 lbs. ..... per dozen $6 00

THREE DOZEN IN A CASE.

MEAT JUICERS.

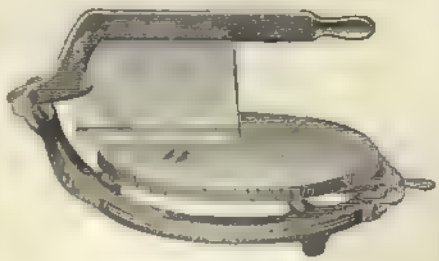


Enterprise.

No. 21—Tinned, length 9 in., height 12 in., w't 7 lbs. ..... per dozen $24.00

This machine is adapted for the extraction of juice from meat. The machine being tinned, no metallic or inky flavor can be imparted to the material used. The dryness of the cake can be regulated by a thumb screw at the outlet.

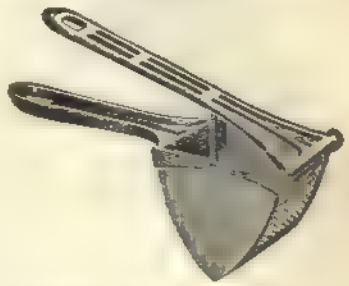
IDEAL CHEESE CUTTERS.



No. 10—Cast iron enamel frame, nickel trimmings, heavy steel blade, wire tinned to prevent rusting, blade 9", in wood tube form, w't 7 lbs. each $15 00

No. 10 is the best cutter made. The dealer knows the cost of his cheese, he adds to this the amount of profit he expects to make and the cutter gives the exact price and tightens the thumb screw, at the left of the scale. After this has been done each full stroke of the cutter will cut off the exact price. The cutter cuts from ¼ to 1 pound per stroke. The blade is made of the finest cutlery steel and is ground hollow. The blade is one of the most important parts of the cutter, and the cutter would be worthless without a good blade, but it is simple, reliable, accurate and very strong.

VEGETABLE AND FRUIT PRESSES.



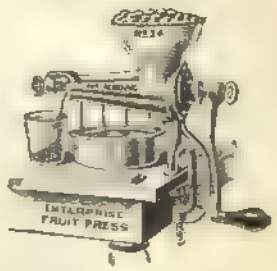
No. 55—Japanned *malleable* frame, w't per doz. 9 lbs. ..... per dozen $5.00

No. 57—Tinned *malleable* iron frame, w't 10½ lbs. ..... per dozen 7 00

No. 65—Japanned malleable iron frame 12 in., perforated tin cylinder 4½×3¼ in., w't per doz. 17 lbs., per dozen $6 00

THREE DOZEN IN A CASE

FRUIT PRESSES.



No. 34—ENTERPRISE, tinned, length 12½ in., height 13½ in., w't 12½ lbs. ..... per dozen $36 00

This machine is superior for all sorts of making wine, jellies and fruit butters from berries of all kinds, grapes, apples, tomatoes, quinces, pineapples, etc. It extracts every drop of juice and leaves the pulp or refuse dry. The dryness of the cake or refuse can be regulated by the thumb screw at the outlet.

SIX IN A CASE

RAISIN SEEDERS.

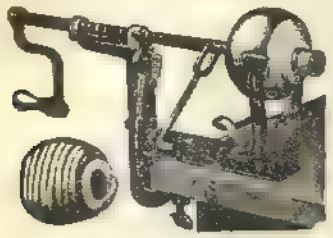
No. 4—CROWN family, tinned, 7 in., w't per doz. 35 lbs. ..... per dozen $12 00

THREE DOZEN IN A CASE.

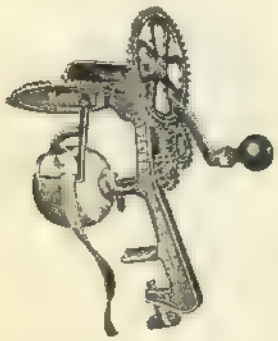
Will seed a pound of raisins in 5 minutes. The crank should be operated with the right hand while the left grasps the pan. Simple in construction, easily adjusted and will do rapid work.

PARERS, SLICERS, STONERS, ETC.

APPLE PARERS.

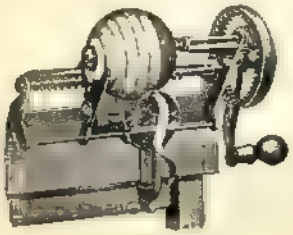


No. 80—WHITE MOUNTAIN, apple parer, corer and slicer with push-off lacquered height 4 in., w't per doz. 25 lbs., per dozen $7.00
This machine pares and slices at the same time or can be used to pare only.
ONE DOZEN IN A CASE.



No. 98—GOODELL'S, turn table, apple parer with automatic push-off, lacquered, height 8 in., w't per doz. 45 lbs..... per dozen $9.00
The above parer is superior to all others for household use where paring only is desired.
ONE DOZEN IN A CASE

No. 78—READING, apple parer, upright, with covered works, lacquered, height 8½ in., w't per doz. 70 lbs., per dozen $10.00
The oldest and best known apple parer made. The mechanism is arranged so that the juice and peelings fall below the parer, not on it.
ONE DOZEN IN A CASE.



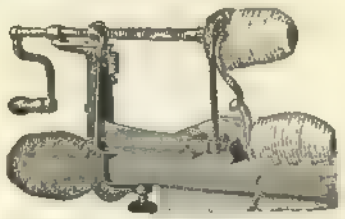
No. 90—GOODELL'S BAY STATE, FAMILY, apple parer, corer and slicer, with automatic core push-off lacquered height 5¾ in., w't per doz 60 lbs., per dozen $19.00
HALF DOZEN IN A CASE.

PEACH AND APPLE PARERS.

No. 65—SCOTT'S, peach and apple parer, detachable from stand, with rotary knife, lacquered, height 5½ in., w't per doz 52 lbs., per dozen $18.00
The only successful peach parer made.
ONE DOZEN IN A CASE.

POTATO PARERS.

No. 1—GOODELL'S SARATOGA, potato parer and slicer, lacquered height 10½ in., removes eye and slices at one operation, w't per doz. 30 lbs., per dozen..... $9.00
ONE DOZEN IN A CASE



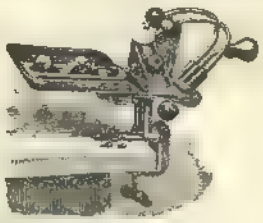
No. 2—GOODELL'S SARATOGA, potato parer, lacquered, 5½ in., removes the eye perfectly w't per doz. 25 lbs., per dozen..... $9.00
ONE DOZEN IN A CASE

FRUIT AND VEGETABLE SLICERS.

Will Slice All Kinds of Fruits and Vegetables.

No. 5—STERLING, walnut bronzed frame with screw clamp, height 12 in., heavy tempered steel double blades, nickel plated adjustable disc, diam. 8 in., safety feed, w't per doz. 96 lbs., per dozen..... $24.00
Slices all kinds of vegetables and fruits any thickness—all slices even. Makes the best cold slaw and Saratoga chips, recuts for French fried potatoes, squares for soups, etc. Prepares vegetables in squares or strips for cooking. Slices sausages and cooked meats. Cuts up anything for salads, meat for meat pies, material for pickles. Well protected and is easily taken apart for cleaning or brushing
HALF DOZEN IN A CASE.

CHERRY STONERS.



No. 3—GOODELL'S, family, lacquered, height 5 in., w't per doz. 18 lbs., per dozen $5.50
This machine removes stones from cherries two at a time, without grinding or mashing the fruit.
ONE DOZEN IN A CASE

This cherry stoner will seed from 30 to 40 qts. per hour. It picks the cherry up, pricks the seed out, leaves the fruit whole and throws it into a dish, there being no grinding, mashing or loss of juice

No. 5 ROLLMAN, tinned, with screw clamp, height 10½ in., w't per doz 21 lbs. .....per dozen $9.00
HALF AND ONE DOZEN IN A CASE.

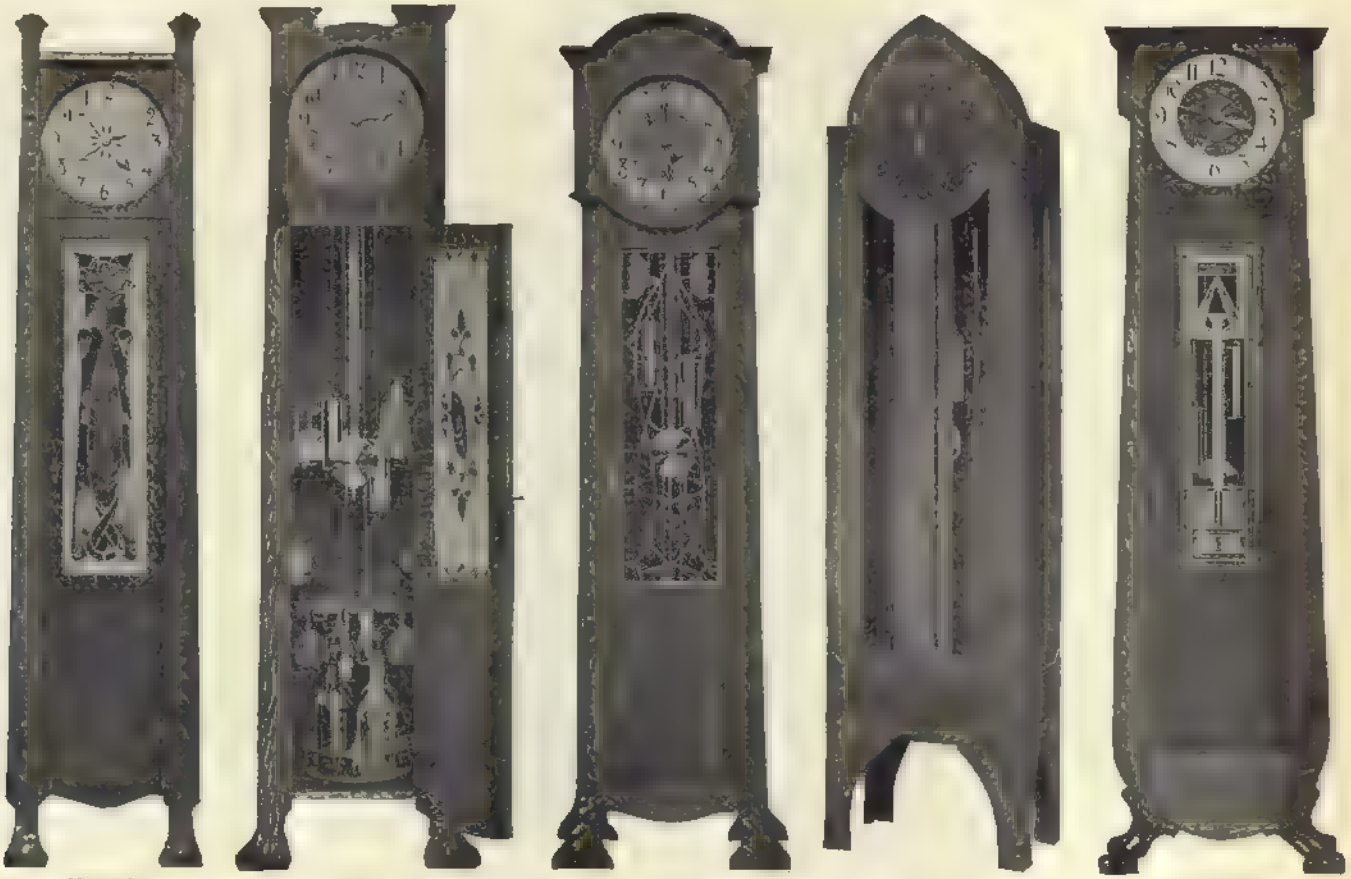
Nos. 1 to 17 No. 20

No. 1—ENTERPRISE, japanned, height 8 in., w't per doz. 50 lbs. ....per dozen $8.00
No. 2—ENTERPRISE, tinned, height 9 in., w't per doz. 60 lbs. ...per dozen 9.00
No. 17—ENTERPRISE, japanned, height 9 in., w't per doz. 60 lbs., per dozen 9.50
No. 20—10 in. high, bronze japan, adjustable to any size cherry, w't per doz. 40 lbs., ...per dozen 7.25
No. 17 is constructed with a regulating device, which is used to adjust machine for different sizes of cherries.
TWO DOZEN IN A CASE.

Will stone cherries with least possible cutting or disfiguring. The crank is easily turned and the plunger removes seeds without loss of juice. Seeds 30 to 40 quarts of cherries per hour. Also seeds grapes nicely

No. 50—NEW STANDARD, TINNED iron height 8 in. w't per doz 40 lbs. per dozen $9.00
ONE IN A BOX.

HALL CLOCKS.



Hiawatha Vincennes Grenada. Napoleon. Admiral

Quartered Oak, Finished in Weathered, Flemish, Fumed, Austrian, Early English, Antwerp and Golden Oak Waxed, Antwerp Oak Dull, and Golden and Antwerp Oak Polished.

Hiawatha—Height 81 in., width 18½ in., depth 12 in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, brass pendulum ball and hands, cathedral gong, etched brass dial in copper and silver relief, leaded art glass in door, - each $68.00

Vincennes—Height 79½ in., width 22 in., depth 12½ in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, cathedral gong, brass pendulum ball and hands, etched brass dial in copper and silver relief, leaded art glass in door, cellarette compartment, - - - - - - - - - - - - - - - - each 68 00

Colonial glassware for above, extra, - " 5 00

Grenada—Height 82 in., width 23 in., depth 12 in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, cathedral gong, brass pendulum ball and hands, etched brass dial in copper and silver relief, leaded art glass in door, - - each 72.00

Napoleon—Height 85½ in., width 21½ in., depth 12 in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, cathedral gong, brass pendulum ball and hands, old copper dial, raised brass numerals, balance of trimming old copper finish, case quartered oak, - - - - - - - - - - - - - - - each 80.00

Admiral—Height 77 in., width 22½ in., depth 12 in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, cathedral gong, brass pendulum ball and hands, etched brass dial in copper and silver relief, leaded art glass in door, - - each 78.00

Always state finish wanted.

BROAD AXES, ADZES AND AXE RACKS.

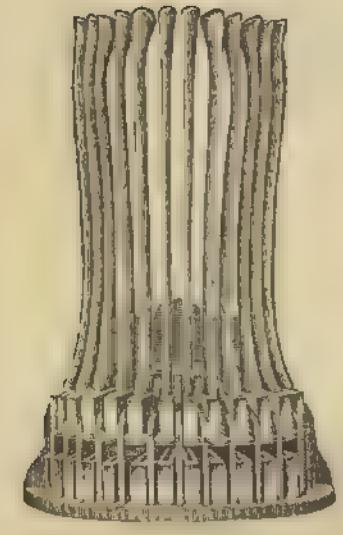
AXE RACKS.

"OUR VERY BEST."

No. 15 GVB—Oak frame with handsome "furniture finish," varnished, nickel plated steel pins, will hold up to 16 unhandled axes, height 32 in., base 11¾×12½ in., pins project 4 in., w't about 10 lbs.
each .$1.80

Axes can be placed as desired on the rack without over-balancing. A handsome display stand for the counter or show window.

ONE IN A CRATE

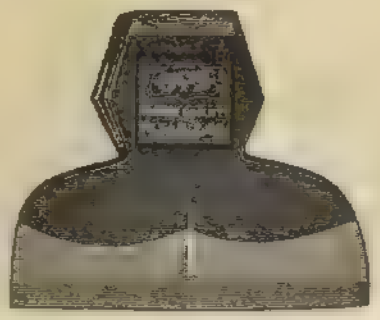


No. 10—SENSIBLE, hardwood, painted red, width 28 in., depth 14 in., holds 16 handled and 16 unhandled axes, w't 21 lbs. ..... each $4.50

Can be used on the counter or on the wall by supporting with brackets. For counter use a fine display can be made by placing two racks back to back. The rack is ornamental and attractive, and will save its cost by keeping axes off the floor, away from the dirt and sprinkler.

ONE IN A CRATE.

"OUR VERY BEST" BROAD AXES.



CANADA PATTERN, Ridge Bit, Extra Quality Forged Tool Steel, Rich Gold Bronzed Body, Polished Head and Bit.

GVB, 6½ to 7½ lbs., 11½ to 12½ in. cut, assorted, w't per doz. about 90 lbs. ..... per dozen $44 00

GVB, 7½ to 8½ lbs., 12½ to 13½ in. cut, assorted, w't per doz. about 105 lbs. ..... per dozen 46 00

ONE DOZEN ASSORTED IN A CASE

GVB, RAMSEY PATTERN, ridge bit, rounded corners, extra quality forged tool steel, rich gold bronzed body, polished head and bit, 6½ to 7½ lbs., 11½ to 12½ in. cut, assorted, w't per doz. about 90 lbs. ..... per dozen $44.00

GVB, PENNSYLVANIA PATTERN, ridge bit, extra quality forged tool steel, rich gold bronzed body, polished head and bit, 6½ to 7½ lbs., 11¾ to 12¾ in cut, assorted, w't per doz. about 90 lbs. per dozen. $32.00

ONE DOZEN ASSORTED IN A CASE.

"OUR VERY BEST" ADZES.

Carpenters' Half Head, Extra Quality, Forged Tool Steel, Gold Bronzed Body, Polished Head and Bit.

No. 10 GVB, Cut.	**4**	**4½ in.**
W't each.	4	4¼ lbs.
W't per doz.	48	51 lbs.
Per dozen.	$24.00	24.00

ONE DOZEN IN A CASE.

Railroad, Full Head, Extra Quality, Forged Tool Steel, Gold Bronzed Body, Polished Head and Bit.

No. 20 GVB —Cut	**5**	**5½ in.**
W't each.	4¼	4½ lbs.
W't per doz.	51	54 lbs.
Per dozen.	$26 00	26 00

ONE DOZEN IN A CASE.

Ship, Spur Head, Extra Quality, Forged Tool Steel, Gold Bronzed Body, Polished Head and Bit.

No. 30 GVB —Cut.	**4**	**4½ in.**
W't each.	3	3¼ lbs.
W't per doz.	36	39 lbs.
Per dozen.	$25 00	25 00

ONE DOZEN IN A CASE

"OUR VERY BEST" HATCHETS.

CHERRY BEVELED.

Shingling. Half.

Extra Quality Forged Tool Steel, Polished Body and Bell Poll, with Handsome Cherry Lacquered Bevels and Round Neck, Select Hickory Handles, Cherry Stained and Hand Rubbed.

No. PS2 OVB—Shingling, 4 in. bit, w't per doz. 26 lbs..per dozen $11 00
No. PH2 OVB—Half, 3⅝ in. bit, w't per doz. 24 lbs.. " 11 50

The Brand "O. V. B." is deep etched and filled with cherry enamel, making a most beautiful and permanent marking.

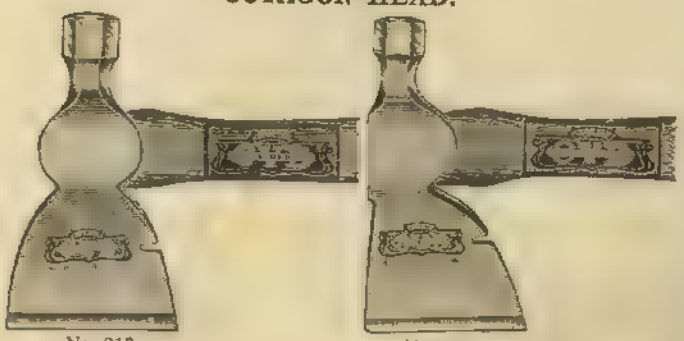
HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.

Claw.

No. PC2 OVB—Claw, extra quality forged tool steel, polished body with handsome cherry lacquered bevels, "O. V. B." brand is deep etched and filled with cherry enamel, select cherry stained second growth hickory handle, 4 in. bit, w't per doz. 26 lbs.....per dozen $12.00

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.

OCTAGON HEAD.



No. 210. No. 220.

Extra Quality, Forged Tool Steel, Octagon Head, Full Nickel Plated, Burnished and Etched, with Select Cherry Stained Second Growth Hickory Handle.

No. 210 OVB—Shingling, 4 in. bit, w't per doz. 26 lbs..per dozen $15 00
No. 220 OVB—Half, 3⅝ in. bit, w't per doz. 26 lbs... " 15 50

Extra Quality, Forged Tool Steel, Octagon Head, Rich Gold Bronzed Body, Polished Face and Bit, with Select White Second Growth Hickory Handle. PER DOZEN.

No. 410 OVB—Shingling, 4 in. bit, smooth head, w't per doz. 26 lbs. $11.50
No. 420 OVB—Half, 3⅝ in. bit, smooth head, w't per doz. 26 lbs. 12.00
No. 430 OVB—Half, 4 in. bit, smooth head, w't per doz. 29 lbs. 12 50
No. 0420 OVB—Half, 3⅝ in. bit, scored head, w't per doz. 26 lbs. 12 50
No. 0430 OVB—Half, 4 in. bit, scored head, w't per doz. 29 lbs. 13 00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

POLISHED.

Shingling. Claw.

Extra Quality Forged Tool Steel, Full Polished and Etched, with Select White Second Growth Hickory Handle.

No. 1 OVB—Shingling, 3½ in. bit, w't per doz. 20 lbs. per dozen $10.50
No. 2 OVB—Shingling, 4 in. bit, w't per doz. 26 lbs. " 11.00
No. 3 OVB—Shingling, 4½ in. bit, w't per doz. 31 lbs. " 11 50
No. 1 OVB—Claw, 3½ in. bit, w't per doz. 22 lbs. " 11 50
No. 2 OVB—Claw, 4 in. bit, w't per doz. 24 lbs. " 12 00
No. 3 OVB—Claw, 4½ in. bit, w't per doz. 29 lbs " 12 50

HALF DOZEN IN A WOOD BOX, SIX DOZEN IN A CASE.

Broad.

Extra Quality Forged Tool Steel Single Beval, Full Polished and Etched, with Select White Second Growth Hickory Handle.

No. 1 OVB—Broad, 4 in. bit, w't per doz. 25 lbs.....per dozen $ 13.50
No. 2 OVB—Broad, 4½ in. bit, w't per doz. 28 lbs..... " 14.50
No. 3 OVB—Broad, 5 in. bit, w't per doz. 35 lbs..... " 17.00
No. 4 OVB—Broad, 5½ in. bit, w't per doz. 38 lbs..... " 18.50
No. 5 OVB—Broad, 6 in. bit, w't per doz. 44 lbs..... " 20.50
No. 6 OVB—Broad, 6½ in. bit, w't per doz. 50 lbs..... " 23 00

HALF DOZEN IN A WOOD BOX, THREE DOZEN IN A CASE.

Half. Lath.

Extra Quality Forged Tool Steel, Full Polished and Etched, with Select White Second Growth Hickory Handle.

No. 1 OVB—Half, 3¼ in. bit, w't per doz. 21 lbs ... per dozen $11.00
No. 2 OVB—Half, 3⅝ in bit, w't per doz. 26 lbs .... " 11.50
No. 3 OVB—Half, 4 in. bit, w't per doz. 30 lbs..... " 12 00
No. 0 OVB—Lath, 2 in. bit, w't per doz. 17 lbs..... " 10 00
No. 1 OVB—Lath, 2¼ in. bit, w't per doz. 21 lbs..... " 10 50
No. 2 OVB—Lath, 2½ in. bit, w't per doz. 23 lbs..... " 11 00
No. 3 OVB—Lath, 2¾ in. bit, w't per doz. 24 lbs..... " 11 50

HALF DOZEN IN A WOOD BOX, SIX DOZEN IN A CASE.

"OUR VERY BEST" HATCHETS.

SHINGLING.

No. 110 GVB—3⅛ in. bit, extra quality forged tool steel, adze eye, bell poll, full polished and etched, with select white second growth hickory handle, w't per doz. 22 lbs.....per dozen $15.00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

HALF.

No. 120 GVB—3⅜ in. bit, extra quality forged tool steel, adze eye, bell poll, full polished and etched, with select white second growth hickory handle, w't per doz. 20½ lbs.. ....per dozen $15.00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

LATH.

No. 130 GVB—Scored head, 2¼ in bit, extra quality forged tool steel, adze eye, bell poll, full polished and etched, with select white second growth hickory handle, w't per doz. 18¼ lbs., per dozen..... $15.00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

SHINGLING.

No. 10 GVB—Combination nickel and and copper plated, 3⅛ in. bit, extra quality forged tool steel, adze eye, bell poll, handsomely copper plated and etched, bit nickel plated, with select white second growth hickory handle, w't per doz. 22 lbs.....per dozen $21.00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

HALF.

No. 20 GVB—Combination nickel and copper plated, 3⅜ in. bit, extra quality forged tool steel, adze eye, bell poll, handsomely copper plated and etched, bit nickel plated, with select white second growth hickory handle, w't per doz. 20½ lbs.. ....per dozen $21.00

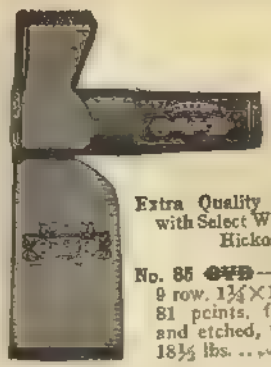
HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

LATH.

No. 30 GVB—Combination nickel and copper plated, scored head, 2¼ in. bit, extra quality, forged tool steel, adze eye, bell poll, handsomely copper plated and etched, bit nickel plated, with select white second growth hickory handle, w't per doz. 18¼ lbs., per dozen..... $21.00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

LATH.



Extra Quality Forged Tool Steel, with Select White Second Growth Hickory Handle.

No. 85 GVB—2⅛ in. bit, 9 row, 1¾×1¾ in. head, 81 points, full polished and etched, w't per doz. 18½ lbs. .....per dozen $16.50

No. 86 GVB—2⅛ in. bit, 10 row, 1⅜×1⅜ in. head, 100 points, full polished and etched, w't per doz. 20 lbs. per dozen 17.50

No. 88 GVB—2⅛ in. bit, 9 row, 1¼×1¼ in. head, 81 points, handsomely nickel plated, w't per doz. 19 lbs. ..... per dozen 18.50

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

No. 100 GVB—Extra quality forged tool steel, full polished and etched, Boston pattern, with select white second growth hickory handle, 2⅛ in. bit, 8 row, 1⅜×1⅜ in. head, 64 points, w't per doz. 20 lbs. .....per dozen $18.00

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE

LATHING OR BOXING.

No. 84 GVB—2⅛ in. bit, 1¼×1¼ in. head, 225 points, slightly rounded face, extra quality forged tool steel, full polished and etched, with select white second growth hickory handle, w't per doz. 17 lbs per dozen..... $21 00

This hatchet is especially adapted for fruit packers and can also be used as a lath hatchet

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

BRONZED PRODUCE.

No. P GVB—Extra quality forged tool steel, rich gold bronzed body, polished bit, square checkered head, two nail slots in blade, with select white second growth hickory handle, 2⅛ in. bit, w't per doz. 21 lbs. per dozen $9 50

An ideal tool for light boxes or crates

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

HATCHETS.

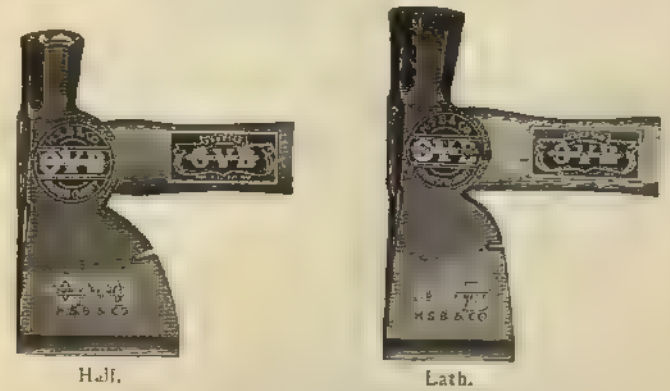
"OUR VERY BEST" BRONZED.

Shingling. Claw.

Extra Quality Forged Tool Steel, Rich Gold Bronzed Body, Polished Face and Bit, with Select White Second Growth Hickory Handle.

No. 1 GVB	—Shingling, 3½ in. bit, w't per doz 20 lbs.	per dozen	$ 8 00
No. 2 GVB	—Shingling, 4 in. bit, w't per doz 26 lbs...	"	8 50
No. 3 GVB	—Shingling, 4½ in bit, w't per doz. 31 lbs..	"	9 00
No. 1 GVB	—Claw, 3½ in bit, w't per doz. 22 lbs. .	"	9 00
No. 2 GVB	—Claw, 4 in bit, w't per doz. 24 lbs...	"	9 50
No. 3 GVB	—Claw, 4½ in bit, w't per doz. 29 lbs. .	"	10.00

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.



Half. Lath.

Extra Quality Forged Tool Steel, Rich Gold Bronzed Body, Polished Face and Bit, with Select White Second Growth Hickory Handle.

No. 1 GVB	—Half, 3¼ in. bit, w't per doz. 21 lbs.....	per dozen	$8.50
No. 2 GVB	—Half, 3⅝ in. bit, w't per doz. 26 lbs.....	"	9 00
No. 0 GVB	—Lath, 2 in. bit, w't per doz. 16 lbs.....	"	7.50
No. 1 GVB	—Lath, 2¼ in. bit, w't per doz. 21 lbs.....	"	8 00
No. 2 GVB	—Lath, 2½ in. bit, w't per doz 23 lbs.....	"	8 50

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.

Extra Quality Forged Tool Steel, Rich Gold Bronzed Body, Polished Face and Bit, with Select White Second Growth Hickory Handle.

		PER DOZEN
No. 1 GVB	—Broad, 4 in bit, *single bevel*, w't per doz 25 lbs.	$10.50
No. 2 GVB	—Broad, 4½ in. bit, *single bevel*, w't per doz. 28 lbs.	11 50
No. 3 GVB	—Broad, 5 in. bit, *single bevel*, w't per doz. 35 lbs.	13 00
No. 4 GVB	—Broad, 5½ in. bit, *single bevel*, w't per doz. 38 lbs.	14.50
No. 5 GVB	—Broad, 6 in. bit, *single bevel*, w't per doz. 44 lbs.	16.50
No. D2 GVB	—Broad, 4½ in. bit, *double bevel*, w't doz. 28 lbs. .	11.50
No. D3 GVB	—Broad, 5 in. bit, *double bevel*, w't doz. 35 lbs. .	13.00
No. D4 GVB	—Broad, 5½ in. bit, *double bevel*, w't doz. 38 lbs. .	14.50
No. D5 GVB	—Broad, 6 in. bit, *double bevel*, w't doz. 44 lbs..	16.50

HALF DOZEN IN A WOOD BOX. SIX DOZEN IN A CASE.

"REV-O-NOC" HAND MADE.

Shingling. Claw.

Hand Made, Extra Tool Steel, Black Finish, Polished Face and Bevel, with Select White Hickory Handle.

No. 1 REVONOC	—Shingling, 3½ in. bit, w't per doz. 20 lbs..	per dozen	$ 8.00
No. 2 REVONOC	—Shingling, 4 in. bit, w't per doz. 26 lbs..	"	8.50
No. 3 REVONOC	—Shingling, 4½ in. bit, w't per doz. 31 lbs..	"	9 00
No. 1 REVONOC	—Claw, 3½ in. bit, w't per doz. 22 lbs..	"	9.00
No. 2 REVONOC	—Claw, 4 in. bit, w't per doz. 24 lbs..	"	9.50
No. 3 REVONOC	—Claw, 4½ in. bit, w't per doz. 29 lbs..	"	10.00

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.

Half. Broad.

Hand Made, Extra Tool Steel, Black Finish, Polished Face and Bevel, with Select White Hickory Handle.

No. 1 REVONOC	—Half, 3¼ in. bit, w't per doz. 21 lbs.	per dozen	$ 8.50
No. 2 REVONOC	—Half, 3⅝ in. bit, w't per doz. 26 lbs.....	"	9 00
No. 2 REVONOC	—Broad, 4½ in. bit, w't per doz. 28 lbs.....	"	11.50
No. 3 REVONOC	—Broad, 5 in. bit, w't per doz. 35 lbs.....	"	13.00
No. 4 REVONOC	—Broad, 5½ in. bit, w't per doz. 38 lbs.....	"	14.50
No. 5 REVONOC	—Broad, 6 in. bit, w't per doz. 44 lbs.....	"	16.50

HALF, HALF DOZEN IN A BOX. SIX DOZEN IN A CASE. BROAD, HALF DOZEN IN A BOX. THREE DOZEN IN A CASE.

No. 32 REVONOC -Derrick, hand made, extra tool steel black finish, polished head and bevel, with select white hickory handle, 3 in. bit, with shoulder for starting nails, 18 in. handle, w't per doz 32 lbs..... per dozen $12 00

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.

SPARK PLUGS AND CARBURETERS.

SPARK PLUGS.

A plug that will spark in water will spark under any conditions found in a gasoline engine cylinder, for soot, oil, carbon or their combination, cannot be compared with water as a short circuiting medium. Facts and actual tests prove this

Do not have to be removed from the cylinder, as they positively require no cleaning

Are adapted for use in both air and water cooled motors

A Reliance clip terminal is furnished with each plug.

Reliance, "Sparks in Water," Porcelain.

No. 1—½ in. standard ....each $1 50
No. 3—Metric ..... " 1 50
No. 6—⅜ in., 18 thread..... ..... " 1 50
⅜ in. 18 thread is also known as A. L. A. M

SPARK PLUG BUSHINGS.

No. 25 -Threaded with metric thread inside, standard ½ in. outside....each $0.15
This little appliance makes it possible to use any high grade French spark plug on any machines.

CADILLAC CORES.

No. 28 .... each $0.75

SPARK PLUG BRUSHES.

No. 56—Presco, wire bristles, hair tuft, 2 tempered thin flat steels.....each $0 25

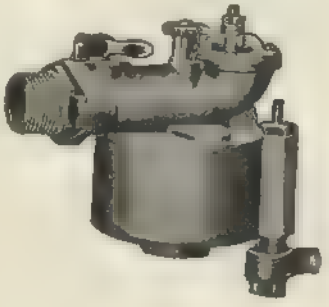
A very handy article to clean your spark plugs. Has strong wire for grease and dirt, bristle hair for finer parts and two tempered thin flat steels with which to reach inaccessible parts.

CARBURETERS.

Showing Horizontal Type
Kingston.

			REGULAR	WITH WARM AIR CONNECTION
No. 50	¾ in. motor cycle size	each	$12 50	
No. 51	¾ in. pipe size	each	12 50	15 00
No. 52	1 in. pipe size	"	15 00	17 50
No. 53	1¼ in. pipe size	"	16 25	18 75
No. 54	1½ in. pipe size. .	"	17 50	20 00
No. 55	2 in. pipe size...	"	25 00	30 00
No. 56	2½ in. pipe size	"	37 50	42 50
No. 57	3 in. pipe size. .	"	50 00	55 00

This carbureter may be furnished with either horizontal or vertical outlets in all sizes, except the 2½ and 3-inch, which are made horizontal only.

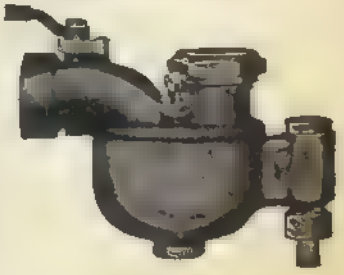


Breeze Automatic.

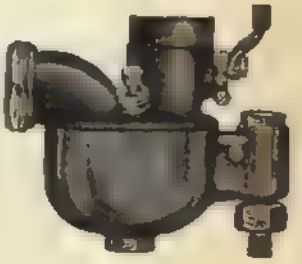
No. 67—	¾ in. pipe size	each	$12 00
No. 68—	1 in. pipe size	"	15 00
No. 69—	1¼ in. pipe size	"	20 00
No. 70—	1½ in. pipe size..	"	30 00
No. 71—	2 in. pipe size.	"	40 00

Two important features, the non-fluttering auxiliary air valve and the starting device are both new. These are exclusive advantages only found on these carbureters. The No. 67 is especially adapted for motor cycle use.

CARBURETERS.



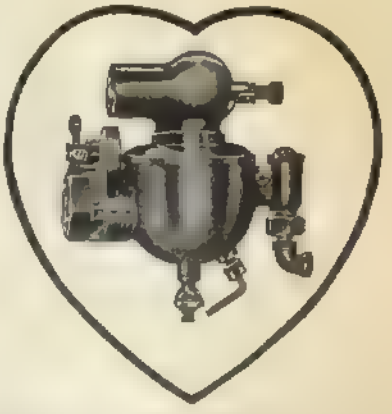
Side Outlet.



Top Outlet.
The Holley.

No. 63—3½ in. to 3¾ in. bore motor, use ¾ in. carbureter..... each $11.00
No. 64—3¾ in. to 4¼ in. bore motor use 1 in. carbureter..... .....each 12 00
No. 65—4½ in. to 5 in. bore motor, use 1¼ in. carbureter.....each 13 00
No. 66—5 in. to 5½ in. bore motor, use 1½ in. carbureter.....each 16 00

Points of superiority as follows: No moving parts in the mixing chamber. Therefore, impossible to get out of adjustment. Absolute uniformity. Much lower speeds than any other type. Greater flexibility. No flooding. No resistance in mixing chamber. More horsepower.



Schebler, Model "D" Standard, for Automobiles.

No. 80	1 in. pipe size .	.each	$16 00
No. 81	1¼ in. pipe size .	"	17 00
No. 82	1½ in. pipe size	"	22 00
No. 83	2 in. pipe size	"	44 00

Model "H", for Motor Cycles.

No. 91	¾ in. pipe size	each	$15 00
No. 92	1 in. pipe size . .	"	16 00

Made of brass. The bowl design combines compactness with practicability. The float is made of cork, heavily shellaced.

AMMETERS, SWITCHES AND TIMERS.

AMMETERS.

No. 16—2½ in., nickel plated ..... each $4 00

The most accurate pocket size instrument on the market. It is a practically dead beat meter, as there is very little oscillation, and the reading is shown almost instantly. Can be applied to either binding post of the battery, as it indicates in either direction of current.

VOLT-AMMETERS.

No. 80—2 in., combination, hand calibrated, accurate ..... each $5 00

This is the most efficient and convenient meter on the market. Has two scales, the top reading in volts 0 to 10, and the lower reading in amperes 0 to 30. Has flexible contact for reading across several cells. Nickel plated vest pocket size.

Connecticut.

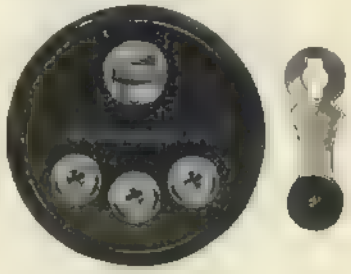
No. 11—Combination volt ammeter 30 amps., 6 volts ..... each $5 00
No. 12—Combination volt ammeter, 30 amps., 15 volts ..... each 6 00
No. 13—Ammeter, 30 amps. ..... " 3.50
No. 14—Voltmeter, 3 volts, 1-10 divisions ..... each 3 50
No. 16—Voltmeter, 8 volts. ..... " 3 50
No. 17—Voltmeter, 15 volts. ..... " 4.00

This instrument is designed to show the exact conditions of your batteries, accurate and handy to carry, furnished with a snap lock hand sewed leather case.

SWITCHES.

No. 27—Splitdorf ..... each $0 90
Plug only, for the above. ..... " .10

One of the best switches made, perfect in every detail, removable plug



Removable Lever.

No. 25—Connecticut, type L ..... each $1 00

The above switches are of the lock type with a removable lever, and are made of a special grade of spring bronze, elastic, positive contacts.

The back edge is filled with a soft rubber gasket so that water cannot run down in back and cause a partial short circuit. Arranged to throw in either set of batteries.

This switch is of the combination lever and plug type and is constructed for two batteries or for one battery and magneto or dynamo, either of which may be used separately but not together, removable plug

No. 26—Kingston with insulated cover knob each $1 20

No. 30—Connecticut, type P, removable plug switch ..... each $1 00

This switch is the acme of perfection in plug switches and is made so that rain water cannot run or drive into the sockets. A soft rubber gasket mounted in the back makes it absolutely watertight. In our regular stock type the center hole is used as a holder for the plug when not in use.

TIMERS.

The contacts of the Herz timer are forged out of Sheffield tool steel, there is no vibration at high speed causing irregularity of ignition. Works with any coil with or without a vibrator and has an air tight dust proof cover. Made to fit any motor.

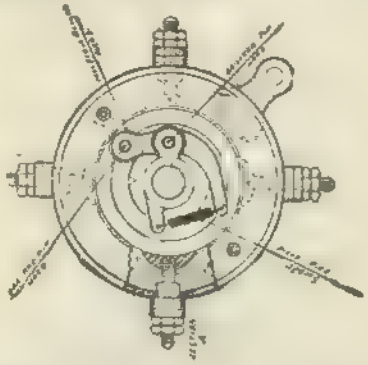
The Herz.

1 cylinder ..... each $ 9.00
2 cylinder, 180° or 90° .. " 11 00
4 cylinder ..... " 15 00
6 cylinder ..... " 18 00
Ford-Tumer ..... " 14 50

The Guenet.

1 cylinder ..... each $ 9 00
2 cylinder ..... " 10 00
4 cylinder ..... " 12 00

The Guenet is the most popular imported French timing device on the market



"The Milwaukee," Self-Adjusting Roller.

1 cylinder ..... each $ 7 00
2 cylinder ..... " 7 50
4 cylinder ..... " 8 00
6 cylinder ..... " 10 00

This timer is self-adjustable, dustproof and lathe finished throughout.

The main case and cover are cast in nickel aluminum. The waterproof fibre rotor is pressed to the case chamber and fastened in place. It has half round pockets nickeled in it for the pressed contact rolls. The shaft is cast current and insulated from the case with a fibre ring fastened in position with a round slotted, lock nut

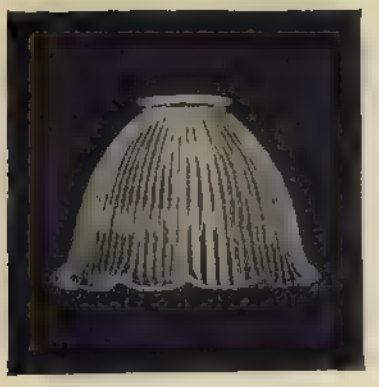
Connecticut.

1 cylinder ..... each $7 00
2 cylinder ..... " 7 50
4 cylinder ..... " 8 50
6 cylinder ..... " 9 50

The Connecticut timer is in dust-proof casing, the shaft carrying the contact wheel holder is ball bearing and adjustable from the outside. When ordering, mention size of shaft, whether ¾ or ⅛ inch.

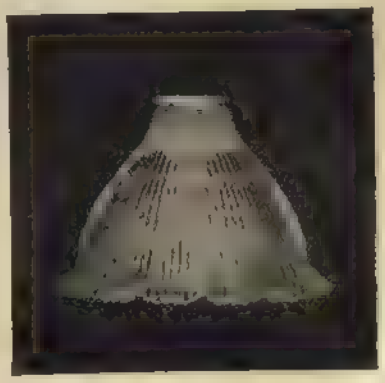
HOLOPHANE REFLECTORS.

For Tungsten, Tantalum and Gem Lamps.

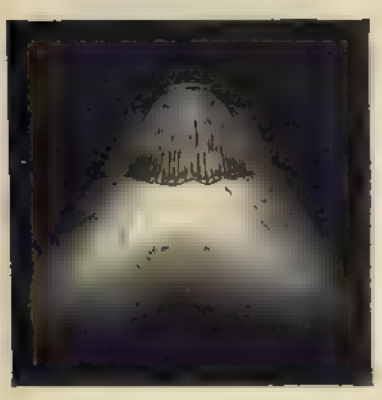


Extensive Type.

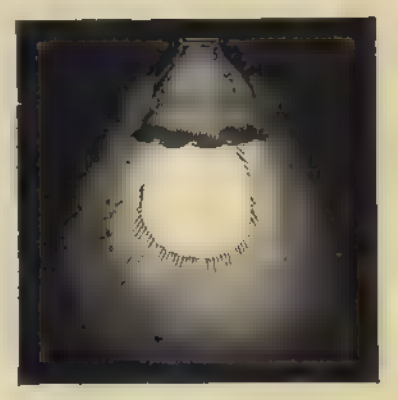
Intensive Type.



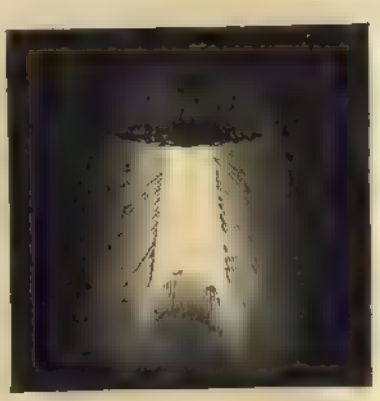
Focusing Type.



Distribution of Extensive Reflector



Distribution of Intensive Reflector.



Distribution of Focusing Reflector.

No 106225E (E3) —*Clear* diam. 5¼ in height 4 in. for form O. holder, used with 25 Watt Tungsten, 40 Watt Tantalum, and 40 or 50 Watt Gem lamps, each. $0 60

No. 0106225E (E3) —*Satin finish*, otherwise same as No. 106225E. . . . . each 70
SIXTY IN A STANDARD PACKAGE.

No. 106230E (E5) —*Clear*, diam 6¼ in., height 4½ in. used with 40 Watt Tungsten and a form H. holder or 80 Watt Gem and a form O. holder. . . . . each 65

No. 0106230E (E5) —*Satin finish*, otherwise same as No. 106230E. . . . . each 75
FORTY IN A STANDARD PACKAGE

No. 106250E (E7) —*Clear*, diam. 6¾ in., height 5 in. for a form H. Holder used with 60 Watt Tungsten, 80 Watt Tantalum and 100 Watts Gem lamps each 70

No. 0106250E (E7) —*Satin finish*, otherwise same as No 106250E. . . . . each 80
FORTY IN A STANDARD PACKAGE

No. 106280E (E9) —*Clear*, diam. 7¾ in., height 5¾ in. for a form H. holder, used with 100 Watts Tungsten and 125 Watts Gem lamps. . . . . each 95

No. 0106280E (E9) —*Satin finish*, otherwise same as No. 106280E. . . . . each 1 10
FORTY IN A STANDARD PACKAGE

No 106125E (I-3) —*Clear*, diam. 6 in height 4½ in., for form O. holder, used with 25 Watt Tungsten, 40 Watt Tantalum 40 or 50 Watt Gem lamps. . . each $0 65

No. 0106125E (I-3) —*Satin finish*, otherwise same at No. 106125E each 75
SIXTY IN A STANDARD PACKAGE.

No. 106130E (I-5) —*Clear* diam. 6¼ in., height 4¼ in.. used with 40 Watt Tungsten and a form H. holder or a 80 Watt Gem and a form O. holder. each .70

No. 0106130E (I-5) —*Satin finish*, otherwise same as No. 106130E . . . . . each .80
FORTY IN A STANDARD PACKAGE.

No. 106150E (I-7) —*Clear*, diam. 7¾ in height 5¾ in. for a form H. holder, used with a 60 Watt Tungsten, 80 Watt Tantalum or a 100 Watt Gem lamps each .85

No. 0106150E (I-7) —*Satin finish*, otherwise same as No. 106150E . . . each .98
FORTY IN A STANDARD PACKAGE

No. 106180E (I-9) —*Clear*, diam. 8 in., height 6½ in., for a form H. holder, used with a 100 Watt Tungsten or a 125 Watt Gem lamp. . . . . each 1 05

No. 0106180E (I-9) —*Satin finish*, otherwise same as No. 106180E . . . each 1.20
FORTY IN A STANDARD PACKAGE.

No. 106325E (F3) —*Clear* diam 6¼ in height 4½ in., for form O. holder, used with 25 Watt Tungsten 40 Watt Tantalum, and a 40 or 50 Watt Gem lamp each. $0 65

No. 0106325E F3) —*Satin finish*, otherwise same as No. 106325E each 75
SIXTY IN A STANDARD PACKAGE.

No. 106330E (F6) —*Clear*, diam 7 in., height 4¾ in., used with a 40 Watt Tungsten and a form H holder or an 80 Watt Gem and a form O holder, each .80

No. 0106330E (F5) —*Satin finish*, otherwise same as No. 106330E . each .80
FORTY IN A STANDARD PACKAGE

No. 106350E (F7) —*Clear*, diam 8 in height 5½ in., for form H. holder, used with 60 Watt Tungsten, 80 Watt Tantalum, and 100 Watt Gem lamp each .95

No. 0106350E F7) —*Satin finish*, otherwise same as No. 106350E. . . . . each .95
FORTY IN A STANDARD PACKAGE

No. 106380E (F9) —*Clear*, diam 8¼ in., height 6¼ in., for form H. holder used with 100 Watt Tungsten and 125 Watt Gem lamp . each 1 05

No. 0106380E (F9) —*Satin finish*, otherwise same as No. 106380E. . . . . each 1.20
FORTY IN A STANDARD PACKAGE

Satin finish is a very light frosting on the inside of the reflector which does not affect the reflecting value very much but does soften the glare. It gives a soft, beautiful appearance. Bowl frosted lamps with white globes are recommended.

SHADES HOLDER WILL NOT BE SHIPPED UNLESS ORDERED. The special holders specified for shades and lamps should always be used to get the proper reflector value.

These reflectors are packed in cases of ten each, except Nos 106225E 0106225E, 106130E, 0106125E, 106325E and 0106325E which are packed twenty in a case.

Cases may be assorted to make a standard package quantity.

HOLOPHANE REFLECTORS.

No. 2544E.

No. 2545E

No. 2544E—Diam. 4½ in., height 2 in. for 1⅝ in. holder .....per hundred $48 00

No. 2545E—Diam. 4½ in., height 2 in., for 1⅝ in. holder ..... per hundred 46 00

STANDARD PACKAGE FIFTY TO A BBL

These are for standard round lamps.

No. 2631F

No. 2631E—Diam 5½ in., height 3½ in., 1⅝ in. holder included...per hundred $71 00

STANDARD PACKAGE; ONE HUNDRED AND TWENTY TO A BBL

No. 2633E—Diam. 6 in., height 3¾ in., 2¼ in. holder included...per hundred 83 00

STANDARD PACKAGE; EIGHTY IN A BBL.

These are for standard lamps, concentrating type.

No. 2621F.

No. 2621E—Diam 6 in., height 3¾ in., 1⅝ in. holder included...per hundred $ 71 00

STANDARD PACKAGE, NINETY IN A BBL

No. 2623E—Diam. 6½ in., height 3½ in. for a 2¼ in. holder, per hundred..... 83 00

STANDARD PACKAGE, NINETY IN A BBL

No. 2673E—Diam. 7½ in., height 1⅝ in., for 2¼ in. holder, per hundred..... 100 00

STANDARD PACKAGE; FIFTY IN A BBL.

No. 2651E—Diam 9½ in., height 5 in., for 2¼ in. holder, per hundred 158 00

STANDARD PACKAGE TWENTY IN A BBL.

These are for standard lamps, concentrating type.

No. 9004E—Diam. 7 in., height 3½ in for 2¼ in. holder, .. per hundred $75 00

STANDARD PACKAGE SEVENTY IN A BBL

For standard lamps

No. 9623E

No. 9623E—Diam. 6¾ in., height 3⅞ in., for 2¼ in. holder, per hundred.... $ 83 00

STANDARD PACKAGE; SEVENTY IN A BBL.

No. 9633E—Diam. 6¾ in., height 4 in., for 2¼ in. holder, shape like 2631E, equal prism per hundred 83 00

STANDARD PACKAGE SEVENTY IN A BBL.

No. 9673E—Diam. 7½ in., height 4⅜ in., for 2¼ in. holder, per hundred..... 100 00

STANDARD PACKAGE; FIFTY IN A BBL.

No. 9651E—Diam. 9⅜ in., height 5 in., for 2¼ in. holder, per hundred..... 158.00

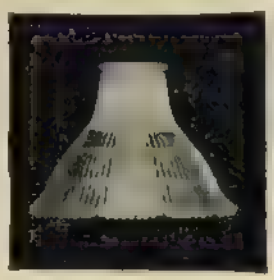
STANDARD PACKAGE, TWENTY IN A BBL.

These are for standard lamps, concentrating type

No. 9000E—Diam. 7 in., height 3 in., for 2¼ in. holder per hundred $75 00

STANDARD PACKAGE SEVENTY IN A BBL

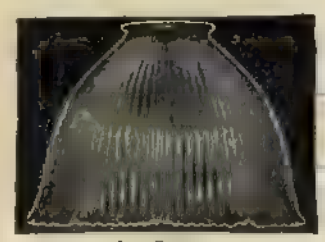
For standard lamps.



No. 9693E—Diam. 6¾ in., height 1⅝ in., for 2¼ in. holder, per hundred $110 00

STANDARD PACKAGE FORTY IN A BBL

For standard lamps.



No. 7 SIE

No. 7301E—Diam. 5¾ in., height 1¾ in., for 2¼ in. holder, per hundred..... $ 95 00

STANDARD PACKAGE, SEVENTY IN A BBL.

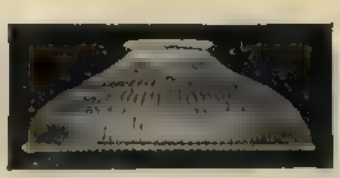
No. 7381E—Diam. 6¾ in., height 4⅝ in., for 2¼ in., holder, per hundred 122 00

STANDARD PACKAGE; THIRTY IN A BBL

No. 7391E—Diam. 7½ in height 5¼ in., for 2¼ in. holder, per hundred 182 00

STANDARD PACKAGE THIRTY IN A BBL

These are for standard lamps, bowl type



No. 9002E—Diam. 7 in., height 2¼ in., for 2¼ in. holder per hundred $75 00

STANDARD PACKAGE, SEVENTY IN A BBL.

For standard lamps

No. 9696E—Diam. 6 in., height 5 in., for 2¼ in holder.....per hundred $121.00

STANDARD PACKAGE; SIXTY IN A BBL.

For standard lamps.

No. 4526E

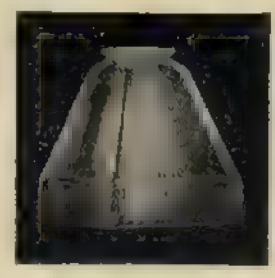
No. 4526E—Diam. 6 in., height 1½ in. for 2¼ in. holder, per hundred. $108.00

STANDARD PACKAGE; FIFTY IN A BBL

No. 4516E—Diam. 5¼ in., height 1⅝ in., for 2¼ in. holder, per hundred..... 121.00

STANDARD PACKAGE SIXTY IN A BBL.

These shades are of French designs and popular where it is desired to break away from conventional lines without sacrificing much in efficiency. For standard lamps.



No. 7420E

No. 7420E—Diam. 6⅛ in., height 5⅛ in., for 2¼ in. holder, per hundred..... $125 00

STANDARD PACKAGE, FORTY IN A BBL.

No. 7400E—Diam. 4¾ in., height 1⅝ in., for 2¼ in. holder, less skirt, per hundred .. 108 00

STANDARD PACKAGE SIXTY IN A BBL.

These reflectors can be used with the Tungsten lamp with the form H holder

ALL LAMP SHADES ON THIS PAGE ARE CLEAR

DOUBLE BARREL SHOT GUNS.

REMINGTON, HAMMERLESS.

Without Automatic Ejector, Guaranteed for Nitro Powders.

No. K—12 or 16 gauge, decarbonized steel barrels, choke bored half pistol grip, checkered grip and fore-end, rubber butt-plate, case-hardened frame and mountings, snap fore-end, flat matted rib, 12 gauge with 30 or 32 in. barrels, 16 gauge with 28 and 30 in. barrels, w't 7 to 8½ lbs.....each $25 00

REMINGTON TRAP GUN.

Hammerless, With Automatic Ejector, Guaranteed for Nitro Powders.

No. KE—12 gauge, with automatic ejector, decarbonized steel barrels, choke bored, straight checkered grip and fore-end, rubber butt-plate, case-hardened frame and mountings, snap fore-end, flat matted rib, 30 in. barrels, w't 7 to 8 lbs.....each $27 50

No. KED—12 gauge, Damascus barrels, choke bored, plain finish walnut stock, pistol grip, 30 in. barrels, w't 7 to 8 lbs... each 33 00

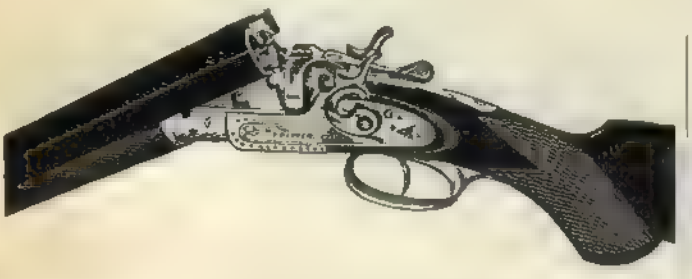
Regular length of stock 14 in., with drop from 2¾ to 3½ in. Any deviation requiring special labor will add $4.00 to list and entail shipment of gun from factory.

TEN IN A CASE

Remington guns are made from selected materials which, after exhaustive tests, have proved best adapted for the purpose. These guns are carefully tested and all parts subjected to a close detail inspection while in process.

After shooting for accuracy, the arm is then required to pass a final inspection, which is very rigid and practically obviates the possibility of any guns not being up to the standard.

T. BARKER.



Top Lever, Extension Rib, Low Hammers.

No. 115—12 gauge, black steel barrels, extension rib, top lever, circular hammers, nickel-plated rebounding bar locks, mountings heavily engraved, snap fore-end, checkered stock and fore-end, black finish stock, full pistol grip, nickel plated iron butt-plate, left barrel choke bored, 30 or 32 in. barrels, w't 7 to 8¼ lbs.....each $13.00

1909 TOBIN HAMMERLESS.

Bored for Nitro Powders.

No. 107—12 gauge, 30 in. Trojan nitro steel barrels, plain finish, case-hardened frame, blued trimmings, checkered full or straight pistol grip, imported walnut stock, rubber butt-plate, left barrel full choke bore, right barrel modified, length of stock 14 in., drop 2¾ to 3 in., weight 7 to 7¾ lbs. .....each $25 00

L. C. SMITH NEW MODEL HAMMER.

Guaranteed for Nitro Powders.

No. 90—12 gauge, royal blued steel barrels, flat matted extension rib, full bar action rebounding locks, rubber butt-plate, new style low circular hammers, case-hardened frame and blued guard, imported English walnut stock, checkered half pistol grip, checkered patent snap fore-end, both barrels full choke bored, 30 or 32 in. barrels, weight 7½ to 8½ lbs.....each $20 00

No. 1690—16 gauge, royal blued steel barrels, otherwise same as No. 90 28 or 30 in. barrels, weight 7 to 7½ lbs. ..... each 20 00

The barrels are made from carefully selected steel toughened and hardened, and are similar in construction to Whitworth Fluid, Crown and Siemens' steel barrels

Guaranteed for Nitro Powders.

No. 91—12 gauge, fine English stub twist barrels, flat matted extension rib, full bar action rebounding locks, rubber butt-plate new style low circular hammers, case-hardened frame and blued guard, imported English walnut stock, checkered half pistol grip, checkered patent snap fore-end, both barrels full choke bored, 30 or 32 in. barrels, weight 7½ to 8½ lbs.....each $23 00

No. 1691—16 gauge, fine English stub twist barrels, otherwise same as No. 91, 28 or 30 in. barrels, weight 7 to 7½ lbs....each 23 00

Guaranteed for Nitro Powders.

No. 92—12 gauge, fine Damascus steel barrels, flat matted extension rib, full bar action rebounding locks, rubber butt-plate, new style low circular hammers, case-hardened frame and blued guard, imported English walnut stock, checkered half pistol grip, checkered patent snap fore-end, both barrels full choke bored, 30 or 32 in. barrels, weight 7½ to 8 lbs .....each $25.00

No. 1692—16 gauge, fine Damascus steel barrels, otherwise same as No. 92, 28 or 30 in. barrels, weight 7 to 7½ lbs.....each 25 00

TWELVE IN A CASE

DOUBLE BARREL SHOT GUNS.

STEVENS' HAMMER.

No. 235—12 gauge, high pressure steel barrels, double bolted matted extension rib, top snap, rebounding bar lock, low circular hammers, solid plungers, reinforced breech, oiled American walnut stock and fore-end, checkered pistol grip checkered patent snap fore-end, 30 or 32 in. barrels, w't 7¼ to 8½ lbs. ..... each $15 00

No. 16235—16 gauge, otherwise same as No. 235, 28 or 30 in. barrels, w't 7¼ to 8 lbs. ..... each 15 00

No 255—12 gauge, high pressure steel barrels, top lever, patent rotary compensating cross bolt through extension rib, check-hook low circular hammers, rebounding bar locks, solid plungers, parts drop-forged varnished walnut stock, finely finished, with pistol grip checked and capped checked patent snap fore-end, rubber butt-plate, 30 in. barrel w't 7¼ to 8½ lbs. ..... each $20 00

STEVENS' HAMMERLESS.

Choke Bored for Nitro Powders.

No. 335—12 gauge, high pressure steel barrels, double bolted matted extension rib, top snap, reinforced breech, oiled American walnut stock and fore-end, checkered half pistol grip stock, 30 in. barrels, w't 7¼ to 8½ lbs., stock 14 in. with 2¾ in. drop.... each $20 00

No. 16335—16 gauge, otherwise same as No. 335, 28 or 30 in. barrels, w't 7¼ to 8 lbs. ..... each 20 00

Constructed on lines similar to our No. [illegible] double barrel hammer gun, inasmuch as it also embodies in [illegible] our celebrated check-hook, which has proven a positive success during the past season. The action is of the Anson & Deeley type and made in as simple a way as possible, with an independent, automatic safety and case-hardened frame. The gun has a double bolt—one in the through-lump and one in the extension rib—and these two fastenings, together with our check-hook, make this model one of the best of its kind on the market at the price.

Bored for Nitro Powders.

No. 355—12 gauge, smokeless blued steel barrels, matted extension rib, top lever, reinforced breech, rebounding locks, mountings drop-forged and case-hardened frame English walnut stock checkered full pistol grip with rubber cap, rubber butt-plate Anson & Deeley fore-end, both barrels choke bored, adapted for any standard make of shells loaded with black or smokeless powder, regular length of stock 14 in., drop from 2½ to 3 in., 30 in. barrel, w't 7¼ to 8 lbs. ..... each $25 00

No. 16355—16 gauge otherwise same as No. 355, 30 in. barrels, w't 7¼ to 7¾ lbs ..... each 25 00

Any deviation from above specifications on Stevens' Hammerless guns subject to advance of $4.00 list, and entail the shipping of such guns from the factory.

HOPKINS & ALLEN'S HAMMER.

No. 0312—12 gauge, decarbonized blued steel barrels, flatted breech, matted extension rib, rebounding bar locks, low circular hammers, case-hardened frame and hammers, blued guard, nitro plungers, Italian walnut stock, half pistol grip, Deeley & Edge fore-end, checkered grip and fore-end, rubber butt-plate, left barrel full choke, right barrel modified choke, 30 or 32 in. barrels, w't 7¼ to 8 lbs. ..... each $15 00

No. 0316—16 gauge, otherwise same as No. 0312, 28 or 30 in. barrels, w't 6¾ to 7 lbs. ..... each 15 00

No. 312—12 gauge, imported English twist steel barrels, otherwise same as No. 0312, 30 or 32 in. barrels, w't 7 to 8 lbs. .each 16 50

No. 316—16 gauge, otherwise same as No. 312, 28 or 30 in. barrels, w't 6 to 7 lbs. ..... each 16 50

No. 320—20 gauge, imported English twist steel barrels, otherwise same as No. 312, 24 in. barrels, w't 6 to 7 lbs. ..... each 16 50

BATAVIA SPECIAL, HAMMERLESS.

Baker Gun Co.'s Full Choke Bored.

No. 18—12 gauge, homo-tensil blued steel barrels, matted extension rib, drop-forged frame and action, full pistol grip stock, full choke bored, 30 in. barrels, w't 7 to 8 lbs... each $21.75

BATAVIA LEADER, HAMMERLESS.

Baker Gun Co.'s Full Choke Bored.

No. 19—12 gauge, twist steel barrels, matted extension rib, drop-forged frame and action, pistol grip stock, full choke bored, 30 in. barrels, w't 7 to 8 lbs. ..... each $25 00

The Batavia Special and Batavia Leader are manufactured by the Baker Gun Co. and are constructed on the most simple mechanical principles and highly improved lines. Nothing but the best quality of material enters into their construction. The actions are carefully hand fitted to insure perfect joints and wearing surfaces. They are made by skilled workmen each specially adapted to the particular operation.

ICE CUTTING AND BREAKING MACHINES.

ICE CUTTING MACHINES.

Chandler's Improved.

No. 1—Counter size, height 10 in., w't 7 lbs. ..... each $ 6 00

No. 2—Family size, height 15 in., w't 14 lbs. ..... each 8 00

No. 2½—Hotel size, height 18 in., w't 25 lbs. ..... each 13 50

No. 3—Confectioners' size, height 24 in., w't 85 lbs.★ ..... each 34 00

No. 1 is a small, compact, simple, strong and cheap machine, which cuts the ice into small lenticular shaped pieces with the utmost ease and rapidity. Can be attached by screws to any table, counter or shelf, and occupies a space only 8 in. square.

No. 2½ stands 18 in. high, occupying a space 8×11 in., and will take in a piece of ice weighing 12 lbs.

No. 3 stands 2 ft. high, occupying a space 15 in. square, and will take in a cake of ice weighing 25 lbs.

Special attention is called to the two largest sizes, No. 2½ and No. 3, designed for hotels and confectioners, hospitals and other institutions where crushed ice is used in quantities for table, ice cream and other purposes.

Showing Drum used on the Little Giant Machines

Little Giant.

No. 0—Hopper 4×6 in., height 18 in., with pan to receive crushed ice, w't 30 lbs. ..... each $7 50

The blades of drum are fastened to the cylinder wheels on the spiral plan. These blades are made of best tool steel and are shaped and set that just so much ice feeds through as the cylinder revolves. The steady cutting makes the machine easy to operate.

In operation the ice is placed directly on the cylinder and feeds through very rapidly of its own weight. The ice, as it leaves the machine, is in uniform pieces that are longer and wider than they are thick, these flat pieces pack very evenly, making the ice effective in the highest degree.

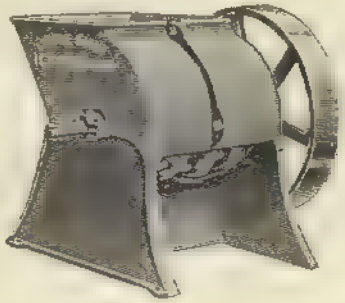
ICE BREAKING MACHINES.

No. 5.

No. 6—Hopper 8½×12 in., height 46 in., floor space 24×24 in., capacity 150 to 300 lbs. per minute, hand power w't 270 lbs★ ..... each $35 00

No. 5P—For power, with tight and loose pulleys, diameter 2½ in., face 2½ in., tight pulley has handle so that it can also be operated by hand, otherwise same as No. 5★ ..... each 40 00

When ordering state whether fine or coarse cut is desired.

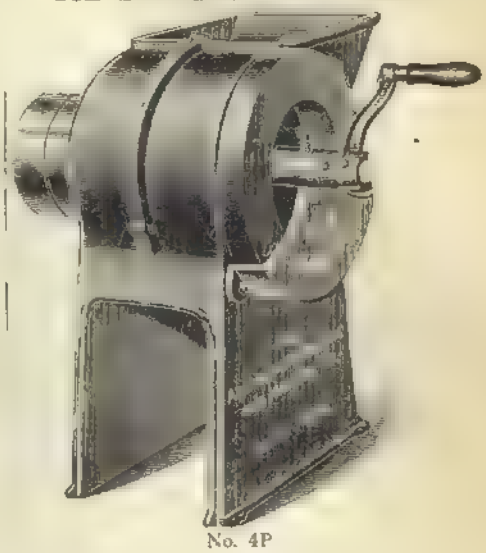


No. 7—For power, hopper 11×12 in., height 29 in., floor space 24×21 in., pulley 24 in., face 4 in., requires about one horse power and can also be operated by hand, capacity 7 ton per hour, w't 500 lbs.★ ..... each $60 00

These machines are regularly furnished with but one tight pulley. If requested loose pulley will be furnished without extra charge. The shaft extends long enough on each side so that either one or two pulleys can be used on either side.

★*FACTORY SHIPMENT ONLY.*

ICE BREAKING MACHINES.



No. 4P

No. 4—Hand power only, fly wheel with crank, will break ice 11×14 in., of any length, height 30 in., width between frames 11 in., floor space 2×2 ft., w't 350 lbs.★ ..... each $37 50

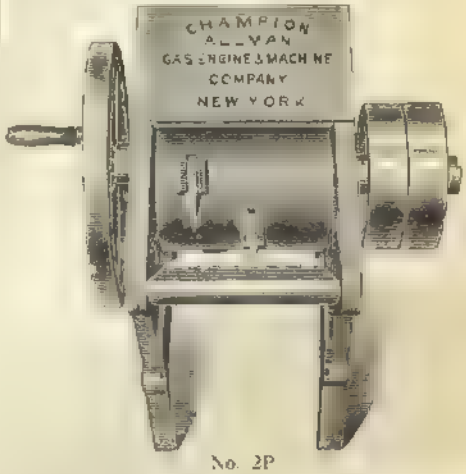
No. 4P—Hand and power, with 9×3 in., tight and loose pulleys, otherwise same as No. 4★ ..... each 42 00

As the ice enters the machine it is cut into smaller pieces by teeth which are mounted on a very heavy drum. This drum revolving very rapidly forces these smaller pieces against the comb, where they are further reduced to the size desired by the action of the teeth passing through the comb.

The teeth are made of the very best tempered steel and are drop forged to make them interchangeable. These teeth are fastened into dove-tailed lugs on the drum so that they become tighter from use, and yet may be easily removed for sharpening.

The comb is a reversible triangular with a row of teeth on each side spaced differently so as to regulate the size of the broken ice.

Champion Ice Breakers are very heavily constructed, the strain equally distributed, and require the least expenditure of time and labor.



No. 2P

No. 2—Hand power only, rear outlet, fly wheel and crank, will break ice 14½×14½ in., of any length, height 33 in., width between frames 14½ in., floor space 3×2 ft., w't 750 lbs.★ each $65 00

No. 2P—Hand and power, tight and loose pulleys, 14×3 in., otherwise same as No. 2★ ..... each 72 00

ICE TONGS.

No. 7.

No. 5.

No. 6.

Nos. 1, 2 and 3.

No. 7 Family, made of 7/8 × 5/8 in steel cast handles, japanned, span 11 in w't per doz 21 lbs., - - - - per dozen $ 5 00

These tongs are to be used with one hand; especially adapted for picking up and throwing a cake of ice

No. 5—Wrought steel, japanned, wood grips, self adjusting tongs, length 17 in., span 14 in , w't per doz 17 lbs., - " 5 00
No. 6 Solid steel, malleable grips self adjusting length 15½ in , span 16 in., w't per doz 24 lbs., - - " 7.50
No. 1—Solid steel, forged, painted red, swelled grips, length 15 in , span 15 in , w't per doz 45 lbs , - - - " 13 00
No. 2—Solid steel, forged, painted red, swelled grips, length 17 in., span 17 in , w't per doz 54 lbs., - - - " 15.00
No. 3 Solid steel, forged, painted red, swelled grips, length 22 in , span 24 in , w't per doz. 72 lbs., - - - " 17.00

CINCINNATI CHAIN.

No. 12 File steel, concave grips span 12 in w't per doz 21 lbs., - - - - - - - - - per dozen $11 50
No. 13 File steel, concave grips span 13 in , w't per doz 22 lbs., - - - - - - - - - " 12.50
No. 14—File steel, concave grips, span 14 in., w't per doz. 24 lbs., - - - - - - - - - " 13.50
No. 15—File steel, concave grips, span 15 in., w't per doz. 30 lbs , - - - - - - - - - " 15.50

Having the correct curve these tongs will hold securely at any span. The rivet is extra large and made of steel. Very easy working, will stand hard usage and especially adapted for handling large quantities of ice

AIR RIFLES.

1909 KING JUNIOR.

Shoots BB Shot.

No. 10—Nickel plated steel barrel and frame, ebony finished stock, good sights, perfect action, length 29 in., w't 1¼ lbs ..... per dozen $6 00

ONE DOZEN IN A CASE

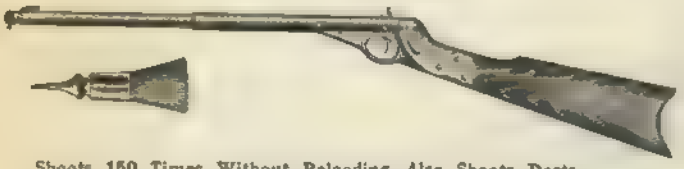
KING SINGLE SHOT.

Shoots BB Shot or Darts.

No. 5004—Made entirely of steel, polished nickel plated barrel, walnut stock, Rocky Mountain front sight, rear peep sight, shoots BB shot or darts, length 31 in., weight 2 lbs. per dozen $12 00

ONE DOZEN IN A CASE

KING REPEATER.

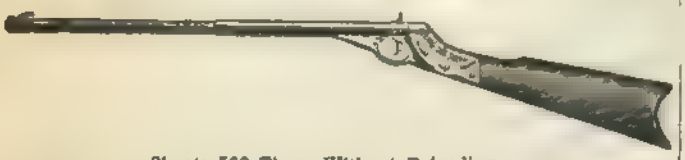


Shoots 150 Times Without Reloading, Also Shoots Darts.

No. 5006—Nickel plated barrel, walnut stock, repeats at the muzzle, cannot be clogged with uneven shot, all parts are interchangeable and easily duplicated, length 32 in., weight 2 lbs. ..... per dozen $15.00

ONE DOZEN IN A CASE

500 SHOT KING REPEATER.

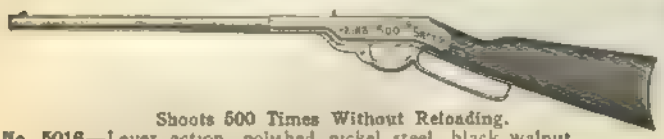


Shoots 500 Times Without Reloading.

No. 5015—Polished nickel steel, black walnut stock, Rocky Mountain front sight, rear peep sight, hammerless, shoots BB shot, all parts interchangeable, length 34 in., weight 1½ lbs. ..... per dozen $18 00

The King 500 Shot is a hammerless repeater and is noted for accuracy, for penetration and for simplicity of construction as a marksman. Loads automatically each time the gun is broken down to compress the spring. The magazine holds 500 air rifle shot and each shot is sized to a size as it enters the barrel, thus giving it great power and accuracy. Every gun is carefully sighted and tested before leaving the factory, and every one is guaranteed.

ONE DOZEN IN A CASE

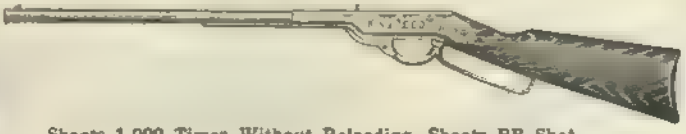


Shoots 500 Times Without Reloading.

No. 5016—Lever action, polished nickel steel, black walnut stock, Rocky Mountain front sight, rear peep sight, hammerless, shoots BB shot, all parts interchangeable, length 33 in., weight 2¼ lbs. ..... per dozen $21 00

HALF DOZEN IN A CASE.

1000 SHOT KING.



Shoots 1,000 Times Without Reloading, Shoots BB Shot.

No. 5017—Lever action, frame and barrel are of one piece nickel plated steel, no joints between barrel and frame to work loose, black walnut stock, excellent sights, all parts interchangeable, length 35 in., weight 2½ lbs., per dozen $24 00

This is a handsome, strong repeater which loads automatically and shoots with accuracy and great penetration.

HALF DOZEN IN A CASE.

KING THREE-IN-ONE.

Shoots BB Shot, Cork or Rubber Ball.

No. 11—Nickel plated steel barrel, ebony finish stock, neat sights and easy action, shoots cork or hollow rubber ball for indoor or outdoor shooting, or may be used as a pop gun, length 29 in., w't 1⅛ lbs. ..... each $9 00

This rifle shoots BB shot with accuracy. A large cork on end of a string makes a big noise but does no damage. A hollow rubber ball is also furnished for indoor shooting, which does not injure walls.

ONE DOZEN IN A CASE.

KING POP GUNS.

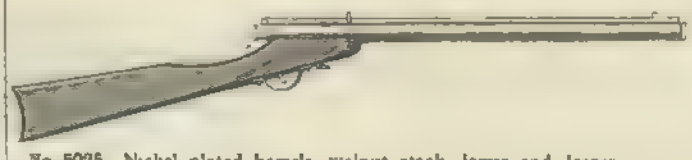
No. 12—Nickel plated steel barrel, walnut stock, shoots a cork at end of string and makes a big noise, length 15 in., w't 6½ oz., per dozen. $3 00

SIX DOZEN IN A CASE.

No. 5001—All steel, nickel plated and polished, length 15 in. ..... per dozen $3 00

THREE DOZEN IN A CASE.

BENJAMIN.



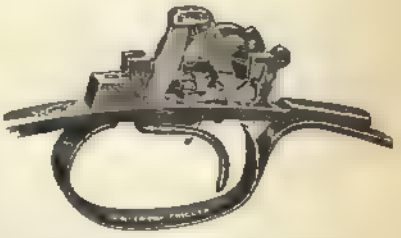
No. 5025—Nickel plated barrels, walnut stock, lower and larger barrel consists of the pump and air chamber, smaller and upper is the shooting barrel; length 37 in., w't 2 lbs ..... per dozen $30 00

This is a pneumatic gun and is operated entirely by air. It is not a spring gun. Air is compressed in an air chamber by a stroke or two of the pump rod and when released by a pressure upon the trigger throws a shot which will easily pass through a one-half inch white pine board. With more pressure greater penetration is secured. It is an ideal gun for target practice and small game. It is simple, strong, efficient, and will last a long time.

DOUBLE BARREL SHOT GUNS.

L. C. SMITH HAMMERLESS.

Single Trigger Mechanism.



Single Trigger Mechanism, Complete.

No. 00 —12 or 16 gauge, embodies all the simplicity of the other grades, combined with the new Armour steel barrels, English walnut stock, half pistol grip, checkered and well finished, without embellishments, 12 gauge 30 or 32 in. barrels, 16 gauge 28 or 30 in. barrels.....each $37 00

No. 00A—12 or 16 gauge, with automatic ejector, 30 in. barrels, otherwise same as No 00.....each 47 00

No. 0 —10, 12, 16 or 20 gauge, a well made gun with all improvements to meet the demands of sportsmen for a reliable gun at low price, No. 0 Damascus barrels, choke bored, English walnut stock, half or full pistol grip, checkered and well finished, 10 and 12 gauge, 30 or 32 in. barrels, 16 gauge 28 or 30 in. barrels, 20 gauge 26 in. barrels .....each 50 00

No. 0A—12 gauge, with automatic ejector, 30 in. barrels, otherwise same as No 0.....each 65 00

No. 1 —12 gauge, a thoroughly well-made gun with all latest improvements, No. 1 Damascus barrels, choke bored, line engraving, English walnut stock, full pistol grip, checkered and finished in the best style, 30 in. barrels.....each 67.50

No. 1A—12 gauge, with automatic ejector, otherwise same as No. 1.....each 80 00

No. 2 —12 gauge good Damascus steel barrels or the famous Crown steel in 12 or 16 gauge to order, good imported English walnut stock, checkered and engraved, half or full pistol grip, 30 in. barrels.....each 87 50

No. 2A—12 gauge, with automatic ejector, 30 in. barrels, otherwise same as No. 2.....each 102 50

No. 3 —12 gauge, fine Damascus steel barrels, or the new nitro steel in 12 or 16 gauge to order, fine imported English walnut stock, very nicely checkered and engraved, half or full pistol grip, 30 or 32 in. barrels★.....each 107 50

No. 3A—12 gauge, with automatic ejector, 30 in. barrels, otherwise same as No. 3★.....each 122 50

No. P—PIGEON, 12 or 16 gauge, Crown steel barrels, thick both at breech and muzzle, especially adapted to stand the tremendous strain of many excessive charges of nitro powder, finest imported French or English walnut stock, very finest checkering, engraved, fine finish, straight, half, three-quarters or full pistol grip, 28, 30 or 32 in. barrels★ .....each $135 00

No. PA—PIGEON, 12 or 16 gauge, with automatic ejector, otherwise same as No. P★.....each 147 00

No. 4 —10, 12 or 16 gauge, very fine Damascus steel barrels, or new nitro steel in 12 or 16 gauge to order, very fine imported English walnut stock, beautifully checkered, very finely engraved, half or full pistol grip, 28, 30 or 32 in. barrels★.....each 165 00

No. 4A—10, 12 or 16 gauge, with automatic ejector, otherwise same as No. 4★.....each 175 00

No. 5 —10, 12 or 16 gauge, very fine Damascus or new nitro steel barrels in 12 or 16 gauge to order, choice imported English or French walnut stock, elaborate checkering, very fine engraving, half or full pistol grip, 28, 30 or 32 in. barrels★..each 215 00

No. 5A—8, 10, 12 or 16 gauge, with automatic ejector, otherwise same as No. 5★.....each 225 00

No. MA—MONOGRAM, 8, 10, 12 or 16 gauge, with automatic ejector, otherwise same as No. M★.....each 375.00

No. A2—10, 12 or 16 gauge, finest Damascus or Whitworth fluid compressed steel barrels, automatic ejector, choice English or French imported walnut stock, very fine checkering and elaborate engraving, very finest finish in every detail, 28, 30 or 32 in. barrels, 12 and 16 gauge to order★.....each 400 00

No. A3—10, 12 or 16 gauge, finest Whitworth fluid compressed steel barrels, automatic ejector, regular or Monte Carlo imported figured stock, elegantly damaskeened works, finely engraved and elaborately ornamented with oak leaf bas-relief, the lightning in the sides of barrels inlaid with gold, pistol or straight grip 26, 28, 30 or 32 in. barrels★.....each 750.00

★*The following guns are made only to special order and are not carried in stock· Nos. 3, 3A, P, PA, 4, 4A, 5, 5A, MA, A2, A3 and one-trigger of all grades*

Any of above guns can be furnished in 20 gauge from factory only, except No. 0 which we carry in stock

Hunter One-Trigger Mechamsm—Can be fitted to any new or old Smith hammerless gun.....extra, $25.00

The Hunter One-Trigger is the latest scientific addition to a double barrel gun. It has been thoroughly tested, and works perfectly. The one-trigger does away with flinching, and enables a shooter to use both barrels without changing his grip.

The pull is short, clean and quick, both barrels can be discharged just as fast as the trigger is pulled and *cannot* be discharged unless trigger is pulled.

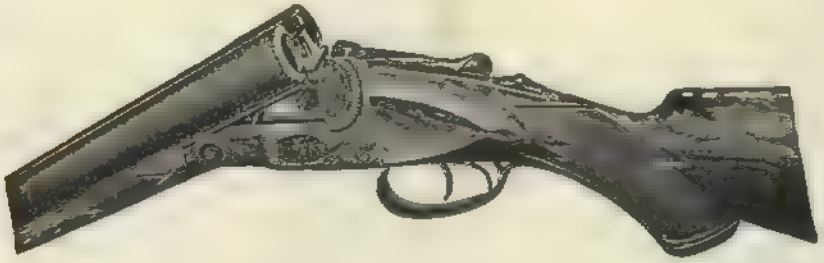
The selective button controlling the order of firing is conveniently located at the side of trigger. Pushing the button backwards exposes the letter L indicating left first, moving it forward concealing L and exposing R, indicates right first. The sportsman can fire right and left, left and right; all rights, all lefts, as the button is never moved unless the order of firing is to be reversed, there is exactly the same control over the firing as in a two-trigger gun.

Old guns will have to be sent direct to factory Hunter Arms Co, Fulton N Y, charges prepaid to have the one-trigger fitted

All Smith guns fitted with one-trigger will have to come from factory to order. We do not carry them in stock.

DOUBLE BARREL SHOT GUNS.

PARKER HAMMERLESS.



Choke Bored, for Hard Shooting.

All the working parts of these guns are attached to the solid iron work (instead of portions being attached to the wood) thus rendering the action of this gun in all climates positive, and not liable to be thrown out of adjustment by the action of the atmosphere on the wood. For safety, the guns are so constructed that the hammers can never be lightly let down to rest on loaded shells—an operation that is very dangerous—and they are guarded against the possibility of its being done. The safety for locking triggers is automatic, also positive and absolute in safe. The cocking is easy and smooth from start to full cock. The action frame is long, insuring much greater strength and durability than is possible to get with the short action used in most foreign-made hammerless guns. The barrels can be detached and attached at all times same as in hammer guns, without reference to their being cocked or not, thus avoiding the necessity of cocking before replacing the barrels. Particular attention has been paid to the proper shape and distribution of materials, and the greatest strength will be found where the strain is most severe, and where the wear and tear is greatest. In these guns will be found that symmetry of proportion, beauty of outline and perfection of balance for which the Parker guns are so justly celebrated. Stocks measured from center of front trigger to center of butt-plate), 14 to 14½ in. Shorter or longer barrels and different stocks to special orders and prices according to extra amount of labor.

No. VH—12 gauge, Vulcan blued steel barrels, American walnut stock, checkered pistol grip and fore-end, hard rubber butt-plate, 30 or 32 in. barrels, drop 2¼ to 3 in., length of stock 14 in., weight 7½ to 8 lbs. ..... each $ 60 00
No. VH—16 gauge, otherwise same as above, 28 or 30 in. barrels, weight 6½ to 7½ lbs. ..... " 50.00
No. VH—20 gauge, otherwise same as above, 28 in. barrels, weight 6 to 6¾ lbs. ..... " 50.00
No. PH—12 gauge, fine twist barrels, American walnut stock, engraved and checkered pistol grip, hard rubber butt-plate, 30 in. barrels, drop 2½ to 3⅛ in., weight 7 to 8 lbs. ..... each 65.00
No. GH—12 gauge, fine Damascus steel barrels, fine figured American or imported stock, checkered and engraved pistol grip, hard rubber butt-plate, 30 or 32 in. barrels, drop 2½ to 3⅛ in., weight 7 to 8 lbs. ..... each 80 00
No. GH—16 gauge, otherwise same as above, 28 and 30 in. barrels, drop 2½ to 3⅛ in., weight 6¾ to 7½ lbs. ..... " 80 00
No. DH—12 gauge, fine Damascus steel barrels, fine imported walnut stock, silver shield, fine checkering and engraving, skeleton butt-plate, pistol grip, 30 in. barrels, drop 2½ to 3⅛ in., weight 7 to 8 lbs. ..... each 100 00
No. DHT—12 gauge, Titanic blued steel barrels, otherwise same as No. DH. ..... " 100 00

Automatic Ejector.

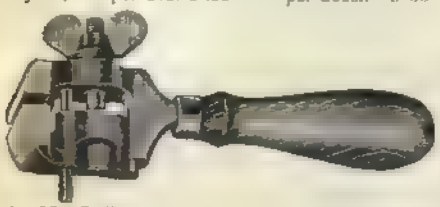
No. EVH—12 gauge, Vulcan blued steel barrels, 30 in. barrels, otherwise same as No. VH. ..... each $ 75 00
No. EGH—12 gauge, fine Damascus steel barrels, otherwise same as No. GH. ..... " 105 00
No. EDH—12 gauge, Titanic blued steel barrels, otherwise same as No. DH★. ..... " 125 00
No. ECH—10, 12, 14, 16, 20 or 28 gauge, Bernard or Titanic steel barrels, imported walnut stock, silver shield, fine checkering and engraving, skeleton butt-plate, straight or pistol grip, 28, 30 or 32 in. barrels★. ..... each 175 00
No. EBH—10, 12, 14, 16, 20 or 28 gauge, Damascus or Titanic steel barrels, imported walnut stock, gold shield, fine checkering and engraving, skeleton butt-plate, straight or pistol grip, 28, 30 or 32 in. barrels★. ..... each 225.00

★*We do not carry these guns in stock and will take orders for factory shipment only.*

VISES.

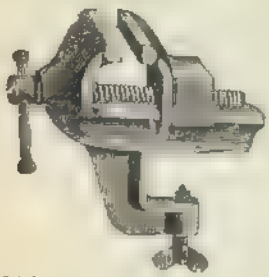
HAND.

No. 144—4 in., wrought iron, 1¼ in jaws, w't per doz. 5 lbs ... per dozen $5 00
No. 144½—4½ in., wrought iron, 1¼ in jaws, w't per doz. 6 lbs per dozen 6 00

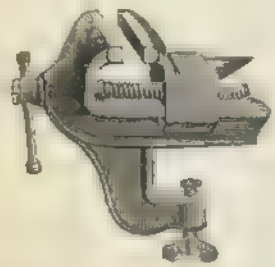


No. 96—Rathbone, 1¼ in. steel jaws, 4 in maple handle, w't per doz. 7 lbs., per dozen $12 00
HALF DOZEN IN A BOX.

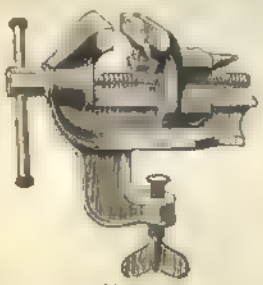
BONNEY'S.



No. 1—1½ in. jaws, wrought iron screw, w't per doz. 15 lbs.. .....per dozen $3 75



No. 1½—1¾ in. jaws, wrought iron screw, w't per doz. 18 lbs per dozen $5 00
No. 02—2 in jaws, wrought iron screw, w't per doz. 24 lbs.. ..... per dozen 6 50



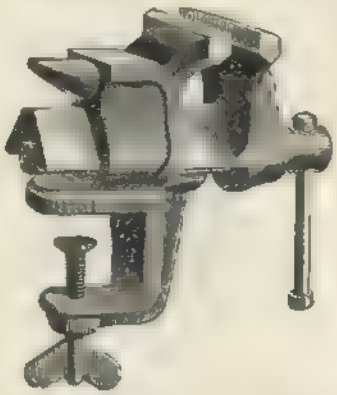
No. 03.

No. 03—2¼ in jaws, with swivel attachment, wrought iron screw, w't per doz 33 lbs. ..... per dozen $12 00
No. 04—2¾ in. jaws wrought iron screw, w't per doz. 60 lbs...per dozen 16 50

BONNEY'S.

No. 9 2½ in. jaws, with swivel jaw and bench attachment, wrought iron screw, w't per doz 60 lbs ..per dozen $22 50

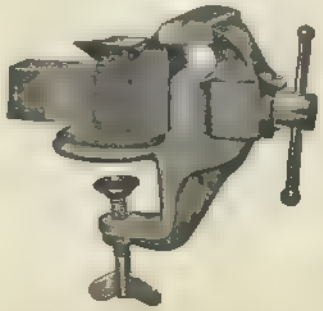
BONNEY'S CHAMPION.



Polished Jaws, Covered Wrought Iron Screw.

Nos	112	113	114
Jaws.			
Opens			
W't per doz			
Per dozen	$4 50	6 50	
Nos	118		121
Jaws.			
Opens			
W't per doz			
Per dozen	$18 00		

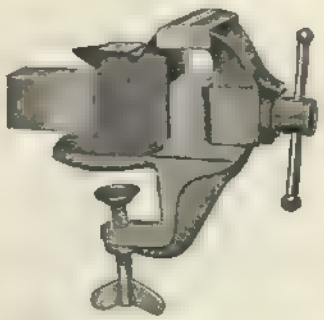
JERSEY.



All Clamp Bottom, Plain Iron Jaws.

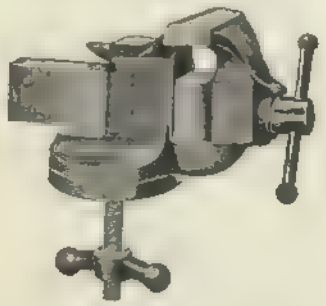
Nos	40½	42	44
Width of jaw....	1¼	1¾	2 in
W't per doz	36	39	42 lbs
Per dozen $9 00		11 00	13 50
Nos	46	48	52
Width of jaw ...	2¼	2½	3 in.
W't per doz.....	48	60	105 lbs
Per dozen $18 00		21 00	28 50

JERSEY.



All Clamp Bottom, Steel Faced Jaws.

Nos	41	43	45½
Width of jaw	1¼	1¾	2 in
W't per doz. .	36	39	42 lbs
Per dozen . . .	$12.00	15 00	18 00
Nos	47	49	53
Width of jaw	2¼	2½	3 in
W't per doz	48	60	105 lbs
Per dozen	$21 00	27 00	34 50



Swivel Base, Steel Faced Jaws.

Nos	56	57	58
Width of jaws	1¼	2	2½ in
W't per doz		42	51 lbs
Per dozen	$16 00	18 00	22 50
Nos .	59		61
Width of jaws	2		3 in
W't per doz	60		114 lbs
Per dozen	$25 00		37 50

No. 10 Assortment—Consisting of display stand and 18 Jersey Vises, w't 60 lbs . ..... per assortment $26 26
Consisting of the following

3 No. 40½	3 No. 44	1 No. 47
2 No. 43	1 No. 52	1 No. 58
3 No. 42	2 No. 46	
1 No. 49	1 No. 56	

These are high grade amateur vises at moderate prices.

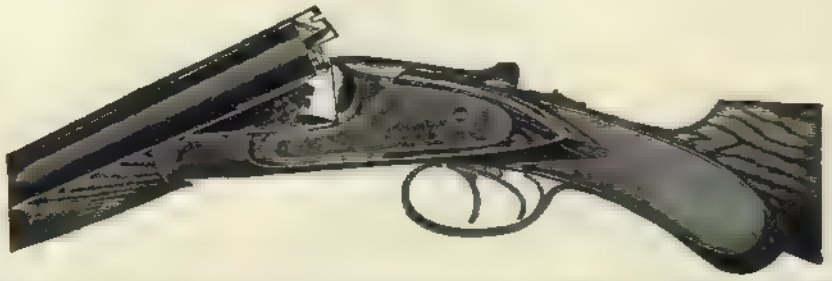
They are fitted with loose malleable iron nut and solid steel screw. Face of jaw is ground so that the jaws come up square. The screw works easy and smooth

The body is finished with a brown baking japan, working parts are highly polished.

Good and substantial small vises, will work when wanted and give satisfaction while in use.

LEFEVER DOUBLE BARREL SHOT GUNS.

HAMMERLESS.



Lefever guns have for about half a century maintained an enviable reputation among sportsmen for accuracy, simplicity of mechanism, and correct balance. In the manufacture of these guns considerable attention has been paid to the compensating features. At such points where the tendency to wear and strain is greatest, will be found materials of the greatest resistance, all properly distributed so as to overcome such action.

All of these guns are fitted with an improved compensating bolt. With this improvement, it is impossible for the gun to open when discharged with heavy loads, which often break off the heads of shells, or through defective primers allow gas to escape into the action, sufficient to throw open any gun having a bolt or bolts with lateral movement.

The locks are attached to the solid gun frame, and not to the lock plates. This gives them a solid and rigid bearing. The lock plates are easily unscrewed and removed without disturbing any other parts, permitting the oiling, examining and testing of the mechanism.

A failure to cock these guns can be instantly detected by means of the indicator projecting from each lock plate when the gun is at full cock. The indicators are independent of each other and are exposed only when gun is at full cock. They are supplied on all of these guns.

Durston Special.

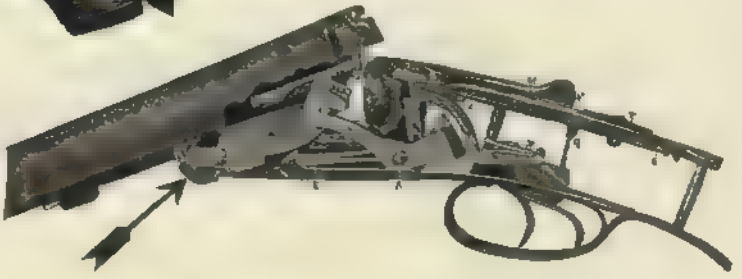
No. DS—12 or 10 gauge. Dura-Nitro steel (black) barrels, imported walnut stock, checkered half pistol grip, 30 in. barrels, bored for trap, field and brush shooting, 12 gauge weight 7 to 8 lbs., 16 gauge weight 6¼ to 7 lbs. ..... each $35 00

No. DSE—12 gauge, with automatic shell ejector, otherwise same as No. DS ..... " 52 00

Bored for Nitro Powders.

No. H—12 gauge, London twist barrels, flat matted extension rib, bolt through rib, case-hardened frame and mountings, automatic safety, English walnut oil-finish stock, full pistol grip with rubber cap, checkered grip and fore-end, rubber butt-plate, full compensated action, 30 in. barrels, weight 7 to 8 lbs. ..... each $44 00

No. HE—12 gauge, with automatic shell ejector otherwise same as No. H★ ..... each 59.00



Bored for Nitro Powders.

No. G—12 gauge, Damascus steel barrels, flat matted extension rib, case-hardened frame and mountings, automatic safety, English walnut stock, full pistol grip with rubber cap, checkered grip and fore-end, rubber butt-plate, *line engraved*, full compensated action, 30 in. barrels, weight 7 to 8 lbs. ..... each $57 00

No. GE—12 gauge, with automatic shell ejector, otherwise same as No. G★ ..... each 72 00

Bored for Nitro Powders.

No. F—12 gauge, Damascus steel barrels, flat matted extension rib, case-hardened frame and mountings, automatic safety, English walnut stock, full pistol grip with rubber cap, checkered grip and fore-end, rubber butt-plate, handsomely engraved lock-plates, full compensated action, 30 in. barrels, weight 7 to 8 lbs.★ ..... each $80 00

No. FE—12 gauge, with automatic shell ejector, otherwise same as No. F★ ..... " 95.00

★We do not carry in stock HE, GE, F or FE, but can order from factory when desired.

TEN IN A CASE.

DOUBLE BARREL SHOT GUNS.

FOX HAMMERLESS.

THE ANSLEY H. FOX HAMMERLESS SHOT GUN embodies many points of superiority.

The barrels are genuine Krupp or Whitworth Fluid Steel. They are tested at the European Government proof houses before they are exported, and are again subjected to severe tests after the gun is completed These barrels are recognized as standards of excellence, and their strength and shooting qualities cannot be excelled

The gun stocks are made of imported English or Circassian walnut and besides being handsomely figured they are carefully selected for quality of wood, direction of grain and fineness of figure

The mechanism is the acme of simplicity and strength. All of the working parts are made of tool steel forgings, and they are finely finished and polished. The parts are all interchangeable, being made accurately to gauges

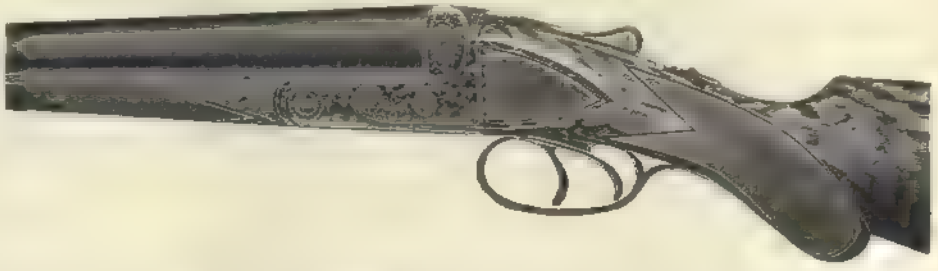
The barrels are locked securely to the frame by a rotary bolt through the extension-rib, the bolt being tapered so as to take up wear in all directions and keep the gun tight and close. Our guns are guaranteed strictly to shoot close, hard and never shoot loose.

Spiral springs operate the hammers and top lever and we guarantee the mainsprings on top lever guns not to break for a time

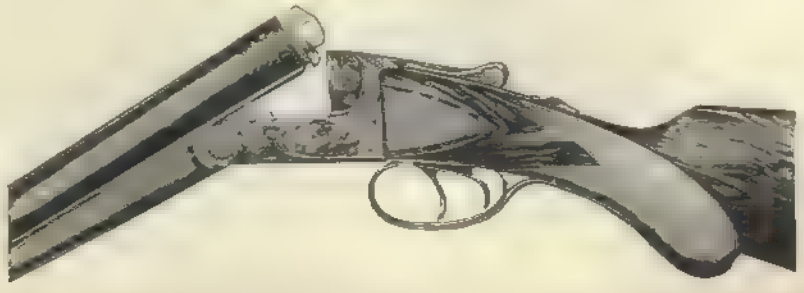
All friction is done away with, which causes the gun to cock so easily that the mere weight of the barrels is practically sufficient to cock the locks and the gun opens as easily as a hammer gun

Because of the small number of parts used in the frame and barrels, they are compact and light yet remain perfectly strong which permits the manufacture of 12 gauge guns as light as 6½ pounds, and also allows the beautiful lines of proportion and finish sought after balance which is simply impossible in guns having complicated mechanism and long, heavy frames thereby necessitated

No. AF—12 Gauge, genuine Krupp Fluid steel barrels, concave matted rib with rotary bolted extension, handsome dark English walnut stock, pistol grip, Deeley & Edge pattern fore-end, hard rubber butt plate, automatic safety, perfectly balanced, engraved and finished in every detail; 30 and 32 in. barrels, weight 7 to 8 lbs.....each $50 00
No. AFE—12 Gauge, automatic ejector, otherwise same as No. AF..... " 65 00



No. BF—12 Gauge, genuine Krupp Fluid steel barrels, concave matted rib with rotary bolted extension, fine selected dark English walnut stock, pistol grip, hard rubber butt-plate, Deeley & Edge pattern fore-end, automatic safety, fine finish and engraving, 30 in. barrels, weight 6¾ to 8 lbs.....each $75 00
No. BFE—12 Gauge automatic ejector, otherwise same as No. BF★..... " 90 00



No. CF—12 Gauge, genuine Krupp Fluid steel barrels, concave matted rib with rotary bolted extension, selected curly dark English walnut stock, pistol grip, Deeley & Edge pattern fore-end, hard rubber butt-plate, automatic safety, extra fine engraving, checkering and finish, 30 in. barrels, weight 6½ to 8 lbs.....each $100 00
No. CFE—12 Gauge, automatic ejector, otherwise same as No. CF★..... " 115 00

★*Nos. BFE and CFE we can furnish from factory only*

LEMON SQUEEZERS AND JUICERS.

LEMON SQUEEZERS.

No. 6—White maple, hardwood ball, 2 in. cup, length 10 in., w't per doz. 7 lbs ..... per dozen $1.75
THREE DOZEN IN A CRATE

No. 9—White maple wood, porcelain ball and bowl, strap iron hinges, length 9½ in., w't per doz. 10 lbs., per dozen..... $3 00
THREE DOZEN IN A CRATE

No. 5—Boss, malleable iron, tinned, length 8 in., w't per doz. 10 lbs., per dozen..... $1 75
HALF DOZEN IN A BOX

No. 15—IMPROVED Boss, malleable iron, heavily tinned, ribbed bowl and cone length 9 in., w't per doz. 12 lbs, per dozen..... $2 25
HALF DOZEN IN A BOX.

No. 4—Malleable iron, heavily tinned frame and strainer bowl, length 10½ in., w't per doz. 20 lbs.....per dozen $3.25
HALF DOZEN IN A BOX.

No. 50—Malleable iron, nickel plated, hardwood ball plunger, length 8 in., w t per doz. 12½ lbs.....per dozen $3 00
HALF DOZEN IN A BOX

LEMON SQUEEZERS.

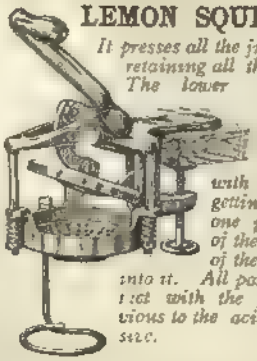
No. 100—Japanned iron frame, porcelain bowl resting on rubber ring, hardwood ball plunger, length 8¾ in., w't per doz. 18 lbs.....per dozen $4 00
HALF DOZEN IN A BOX.

No. 14—Japanned iron frame, large glass cup with ribbed cone, length 10 in., w't per doz. 20 lbs.....per dozen $5 00
No. 140—Tinned malleable iron cup, otherwise same as No. 14, w't per doz. 19 lbs..... per dozen 5 00
Glass cup is easily removed and can be used separately as a juice extractor.
HALF DOZEN IN A BOX

No. 22—LITTLE GIANT, malleable iron, tinned, with plate to retain lemon, length 9¼ in., w't per doz. 16 lbs., per dozen..... $8.00
HALF DOZEN IN A BOX.

No. 10—Drum, japanned malleable iron frame, extra deep porcelain bowl, hardwood combination plunger and strainer, length 9½ in., w't per doz. 25 lbs..... per dozen $ 8.50
No. 12—Drum, nickel plated malleable iron frame, otherwise same as No. 10, per dozen..... 11 50
ONE IN A BOX

LEMON SQUEEZERS.

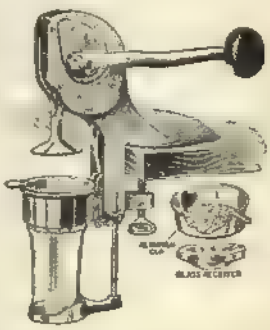


It presses all the juice from the fruit, retaining all the pulp and seeds. The lower presser block and strainer rest upon springs so as to work both large and small fruit with equal efficiency, getting all the juice with one positive movement of the lever without any of the bitter part getting into it. All parts coming in contact with the fruit are impervious to the acid and non-corrosive.

No. 52—UNIQUE, height over all 7 in., finished in duplex copper, nickel plated surface, w't per doz. 80 lbs, per dozen..... $48.00

Readily detached from the holder for cleaning without the use of tools, by simply lifting it out of the socket.

No. 62—Malleable iron, nickel plated highly polished frame with clamp, parts that come in contact with lemon heavily coated within and will not corrode, adjustable tumbler stand, w't per dozen 48 lbs.. per dozen $35.00



The aluminum cup and glass juice receiver set in loosely and can instantly be removed. Juice does not come in contact with metals, insuring absolute purity. The squeezer has a rotating movement adjusted so that it extracts every particle of juice.

No. 42—Nickel plated and highly polished cast aluminum crusher head and cup, with clamp adjustable glass support, 21×16×13 in., w't per doz. 88 lbs ..... .per dozen $75.00
ONE IN A BOX.

LEMON JUICERS.

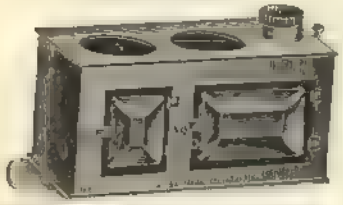
No. 1.

No. 2

No. 1—Clear glass, ribbed cone, strainer base, for use on tumbler, w't per doz. 4 lbs.....per dozen $1 00
No. 2—Clear glass, ribbed cone, deep saucer, w't per doz. 10 lbs., per dozen 2 00
NO. 1, ONE-THIRD DOZEN; NO. 2, HALF DOZEN IN A BOX.

CAMP STOVES.

CAMPERS'.



No. 125G CAMPERS', sheet steel, with hinge doors, two holes with covers, six feet telescope pipe, size 23×12×12 in., oven 10×10×6 in., w't 16 lbs....each $3 20

OUTING.

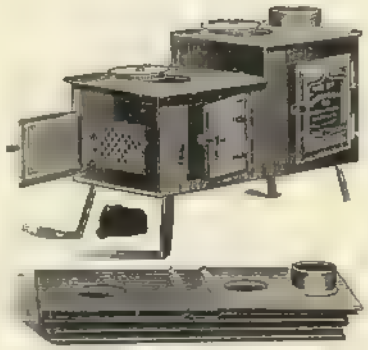
No. 50G—OUTING sheet steel, folding, with hinged doors, sliding circular joints, size 26×10×11½ in., oven 8×10×6 in., w't 12½ lbs., takes 5 in. pipe, each $6 00

Can be put together without the use of tools or rivets, and forms an air-tight stove in which the draft can be regulated to a nicety. The stove can be easily taken apart.

In assembling, the sides are secured to the bottom by sliding the sections together; the front and back sections are then forced down, after which the bottom, sides and top of oven are put into position; the top is next slid on from the front.

ONE IN A BOX.

LITTLE PET.



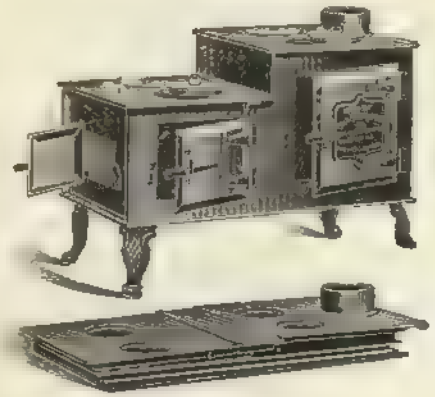
No. 120G—LITTLE PET, 20 gauge steel, length 23 in., height 12 in., width 12 in., 8×8×12 in. oven, two 5 in. cooking holes, not folding, w't 23 lbs., takes 5 in. standard stove pipe.....each $12.00

No. 220G—LITTLE PET, *folding*, otherwise same as No. 120G.....each 16 00

Very compact, light and easy to set up.

ONE IN A BOX.

SPORTSMAN'S.



No. 320G—SPORTSMAN'S DELIGHT, 20 gauge steel, length 29 in., 16 in. oven, 11 in. high at the fireplace, removable legs 7 in. high, making the stove 23 in. high when in use, four 5 in. cooking holes, takes 4 in. pipe; oven, 10 in wide, 11 in. high and 17 in deep, *not folding, with hearth*, w't 38 lbs...each $16.00

No. 420G—SPORTSMAN'S FRIEND, *folding, without hearth*, otherwise same as No. 320G.....each 20 00

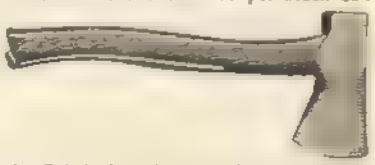
All stoves are packed in a neat pine box, convenient for shipping and storing. Stoves are painted with graphite black enamel, which does not burn or peel off in use. Every cooking hole is protected with a cast iron ring riveted firmly on the inside, so no matter how heavy the cooking utensil may be, there is no danger of injuring the stove.

ONE IN A BOX.

HUNTERS' SUNDRIES.

MARBLE'S SAFETY POCKET AXES.

No. 5—Polished steel axe, 10½ in. hickory handle, blade 4¾ in., nickel plated hinged spring guard, the head is designed for driving spikes or stakes, w't 16 oz.. .... per dozen $24 00



No. 6—Polished steel axe 12 in. hickory handle, 4½ in. blade, nickel plated hinged spring guard, w't 20 oz., per dozen.. $34 00

No. 1—Polished steel axe, 10 in. nickel plated steel handle 3⅞ in. blade, engraved hard rubber plates, nickel plated steel hinged spring guard, w't 16 oz..... .per dozen $40 00

No 2—Polished steel axe, 11 in. nickel plated steel handle, engraved hard rubber plates, nickel plated steel hinged spring guard, blades 4 in., w't 20 oz ... . per dozen $40 00

No. 2½—Polished steel axe, 11 in nickel plated steel handle engraved hard rubber plates, nickel plated steel hinged spring guard, blade 4 in., with nail puller, w't 22 oz.....per dozen $44 00

HUNTERS' AXES.

"OUR VERY BEST."

No. 119 **OVB**—Solid cast steel, full polished, 3 in. bit, 14 in. handle, w't per doz 21 lbs.....per dozen $9 00

No. 120 **OVB**—With russet leather belt and shield, otherwise same as No. 119, w't 24½ lbs.....per dozen 23 00

No. 118 **OVB**—Leather belt with shield, per dozen..... 11.00

COMPASSES.

Beveled Glass, Open Case, with Ring.

No. 5—1 in. white dial, nickel plated ... .per dozen $2 50

No. 6—1¼ in., white dial, nickel plated case ..... per dozen 4.80

No. 7—1⅝ in., silvered metal dial, with needle stop, lacquered brass case, per dozen..... 9 00

No. 9—1⅝ in., full division, silvered metal dial jeweled with needle stop lacquered brass case.....per dozen 14.00

Beveled Glass, Slip Cover.

No. 3—1⅛ in., white dial, nickel plated case..... per dozen $ 4.40

No. 4—1¼ in., white dial, nickel plated case .....per dozen 5.00

No. 8—1⅝ in., silvered metal dial, lacquered brass case, with needle stop, per dozen 14 50

No. 10—1⅞ in., silvered metal dial, lacquered brass case full division, jeweled with needle stop ..per dozen 19 00

No. 11—1½ in., *hinged cover, with ring*, silvered metal dial, lacquered brass case, full division, jeweled, with needle stop.....per dozen 22 00

Beveled Glass, Slip Cover.

No. 15—2¼ in., silvered metal dial, nickel plated case, full division, jeweled, best quality, English bar needle, automatic stop. . .....per dozen $48 00

COMPASSES.

MARBLE'S.

No. 21—1⅛ in., stationary dial, nickel plated, jeweled, with safety pin attachment to fasten to coat or belt, per dozen..... ... $20 00

No. 12—1⅝ in., watch case style, nickel plated, hinged cover, white dial, full division, automatic stop, jeweled, per dozen $30 00

No. 17—2¾ in., silvered, metal dial, full division, automatic stop, in 3×3 in. hinged rosewood case.....per dozen $21.00

MATCH SAFES.

MARBLE'S.

No. G2—Pocket, waterproof nickel plated drawn brass, size 2¼ × ⅞ in. per dozen $7 20

The bottom of the box is threaded to receive threaded collar, which is attached to the downwardly extending arms of the cover. The cover has a rubber gasket firmly held in place by a brass washer. A protecting tooth prevents the cover being swung too far to one side.

ONE DOZEN IN A BOX

MEASURING TAPES.

"Rev-o-noc," Asses' Skin, Brass Bound, Green Enameled Case, with Folding Handle, 1/2 Inch Pale Blue Cotton Tape.

Nos	30	32	33
Length	25	50	50 ft
W't per doz	2	2½	3½ lbs
Per dozen..	$3 75	4 50	5 00
Nos..	34	35	37
Length	66	75	100 ft
W't per doz	3¾	4½	5½ lbs
Per dozen	$6 00	7 50	9 00

HALF DOZEN IN A BOX

Rival, Nickel Plated Steel Case, Flush Handle, 3/8 Inch Steel Tape, Marked in 12ths.

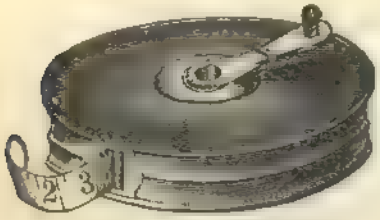
Nos	240	243	245	246
Length	25	50	75	100 ft.
W't per doz	3	9	12	15 lbs
Per dozen	$33 00	40 80	54 00	69 00

HALF DOZEN IN A BOX

Chesterman's Metallic, Natural Color Leather Case, 5/8 Inch Wired Linen Tape, Marked in 10ths or 12ths.

No. 34L—Feet.	50	66	75	100
W't per doz	3	6	7½	9 lbs
Per dozen	$31 20	36 00	39 60	50 40

ONE-QUARTER DOZEN IN A BOX



Patent Leather Case, with Folding Handle, 1/2 Inch Best Cotton Tape.

Nos	43	45	46	48
Length	50	66	75	100 ft
W't per doz.	4	4½	5	6 lbs
Per dozen.	$6 25	7 25	8 75	10 75

HALF DOZEN IN A BOX

Lufkin's Reliable Junior, Hard Leather Case, Nickel Plated Trimmings, Double Folding Flush Handle, Opened by Pressing Small Button on Opposite Side, 1/4 Inch Steel Tape, Marked in 12ths.

Nos	100	103
Length	25	50 ft
W't per doz.	3	5 lbs
Per dozen	$45.00	55.00

ONE IN A BOX.

Chesterman's Steel, Natural Color Leather Case, Flush Handle, 3/8 Inch Steel Tape, Marked in 12ths.

No. 38L—Feet	50	66	75	100
W't per doz	9	12	15	18 lbs
Per dozen	$86 40	110 40	124 80	153 60

ONE-QUARTER DOZEN IN A BOX

Oak Tanned Bend Leather Case, 5/8 Inch Heavy Holland Tape.

Nos.	120	121	122	123
Length	50	66	75	100 ft
W't per doz	5	6½	7	9 lbs
Per dozen	$16 00	17 00	18 00	20 00

HALF DOZEN IN A BOX.

SURVEYORS'.

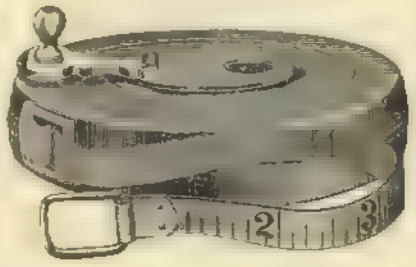
Lufkin Metallic, Hard Leather Case, Brass Trimmings, Folding Handle, 5/8 Inch Woven Linen Tape with Metallic Warp, Marked in 12ths.

Nos	500L	503L	504L	505L	506L
Length	25	50	66	75	100 ft.
W't doz	6	9½	12	13	16 lbs
Per dozen	$21 60	31 20	36 00	39 60	50 40

Lufkin Metallic, Hard Leather Case, Brass Trimmings, Folding Handle, 5/8 Inch Woven Linen Tape with Metallic Warp, Marked in 10ths.

Nos	503DL	506DL
Length	50	100 ft.
W't per doz.	9½	16 lbs
Per dozen	$31 20	50 40

ONE IN A BOX.



Lufkin's Challenge, Hard Leather Case, Nickel Plated Trimmings, Flush Handle, 3/8 Inch Steel Tape, Marked in 10ths or 12ths.

Nos	263	265	266
Length	50	75	100 ft.
Marked in	12ths	12ths	12ths
W't per doz	7½	11	14 lbs
Per dozen	$48 00	63 00	81 00
Nos	263D	265D	266D
Length	50	75	100 ft.
Marked in	10ths	10ths	10ths
W't per doz.	7½	11	14 lbs.
Per dozen	$48 00	63.00	81.00

HALF DOZEN IN A BOX.

Finished Hardwood Reel Holder, Large Metal Folding Handle, Two Large Detachable Rings, Nickel Plated Trimmings, 1/4 Inch Heavy Steel Tape.

Nos	5100	5150	5200
Length	100	150	200 ft
W't per doz	30	33	39 lbs
Per dozen	$72 00	90 00	108 00

Graduated every foot, the end feet in 10ths or 12ths. These tapes will be furnished with end feet graduated to 10ths, unless otherwise specified.

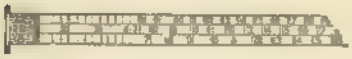
ONE IN A BOX.

YARD STICKS, RULES AND POCKET TAPES.

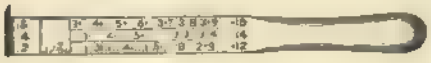
YARD STICKS.

No. 41—Maple, polished, brass tipped, marked in 8ths in., width 1 in., w't per doz. 3½ lbs.....per dozen $3.50
No. 60—Hickory, polished, brass tipped, marked in 8ths in., width ¾ in., w't per doz. 2 lbs.....per dozen 4 50
ONE DOZEN IN A PACKAGE.

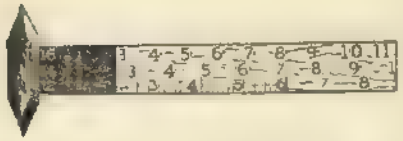
BOARD RULES.



No. 43½—Board stick, flat, hickory, cast brass head and tip, 6 lines (12 to 22 ft.), length 3 ft., w't per doz. 3¾ lbs..... per dozen $12 00
HALF DOZEN IN A PACKAGE

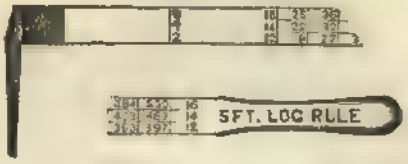


No. 2—Board rule, hickory, steel head 6 lines (12 to 22 ft.), length 3 ft., w t per doz. 6 lbs. .....per dozen $21 00
No. 1—Inspectors' rule, hickory, steel head 6 lines (12 to 22 ft.), length 3½ ft., w't per doz. 7 lbs..... per dozen 27 00
HALF DOZEN IN A PACKAGE.

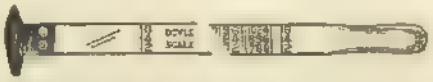


No. 3—Diamond head, hickory, white shellaced, burnt figures, polished steel head, 3 tiers wide (12, 14, 16, and 8, 10 and 18 ft.), length 3 ft., w't per doz 6½ lbs.....per dozen $23 00
HALF DOZEN IN A PACKAGE

LOG RULES.



Hickory, Solid Hook, Figured 48 Inch Scale, for 12 to 24 Foot Logs, 8 Inch Handle.
No. 11—Scribner's, w't per doz. 11 lbs., per dozen..... $27 00
No. 12—Doyle's, w't per doz. 11½ lbs., per dozen..... 27 00
HALF DOZEN IN A PACKAGE.



Lufkin's, Hickory, Square Steel Head, Burnt Figures.
No. 15—Doyle scale figured 36 in., for 8 to 20 ft. logs, length 42 in., w't per doz. 8½ lbs..... per dozen $23 00
No. 15½—Doyle-Scribner scale, figured 36 in., for 8 to 20 ft logs, length 42 in., w't per doz. 8½ lbs.....per dozen 23 00
No. 14—Doyle scale, figured 48 in., for 12 to 24 ft. logs, length 56 in., w't per doz. 9¾ lbs.....per dozen 27 00
No. 14½—Doyle-Scribner scale, figured 48 in., for 12 to 24 ft. logs, length 56 in., w't per doz. 9¾ lbs.....per dozen 27 00
HALF DOZEN IN A PACKAGE

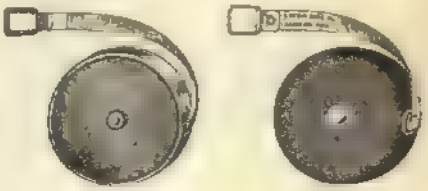
POCKET TAPES.

No. 165—Universal, 5 ft., nickel plated case, spring wind, center stop, ¼ in. painted tape, marked in inches and eighths, w't per doz. 1 lb .per dozen $1 50
ONE DOZEN IN A BOX

POCKET TAPES.

No. 155. Nos 24 and 25.

No. 155—5 ft., nickel plated case, patent spring, with stop, ¼ in. cotton tape, per dozen..... $4.00
No. 24—3 ft., nickel plated case, patent spring, with stop, ¼ in. linen tape, per dozen..... 6 00
No. 25—5 ft., nickel plated case, patent spring, with stop, ¼ in. linen tape, per dozen..... 6.50
NO. 25 HALF DOZEN; BALANCE, ONE DOZEN IN A BOX. AVERAGE WEIGHT 1 LB. PER DOZEN



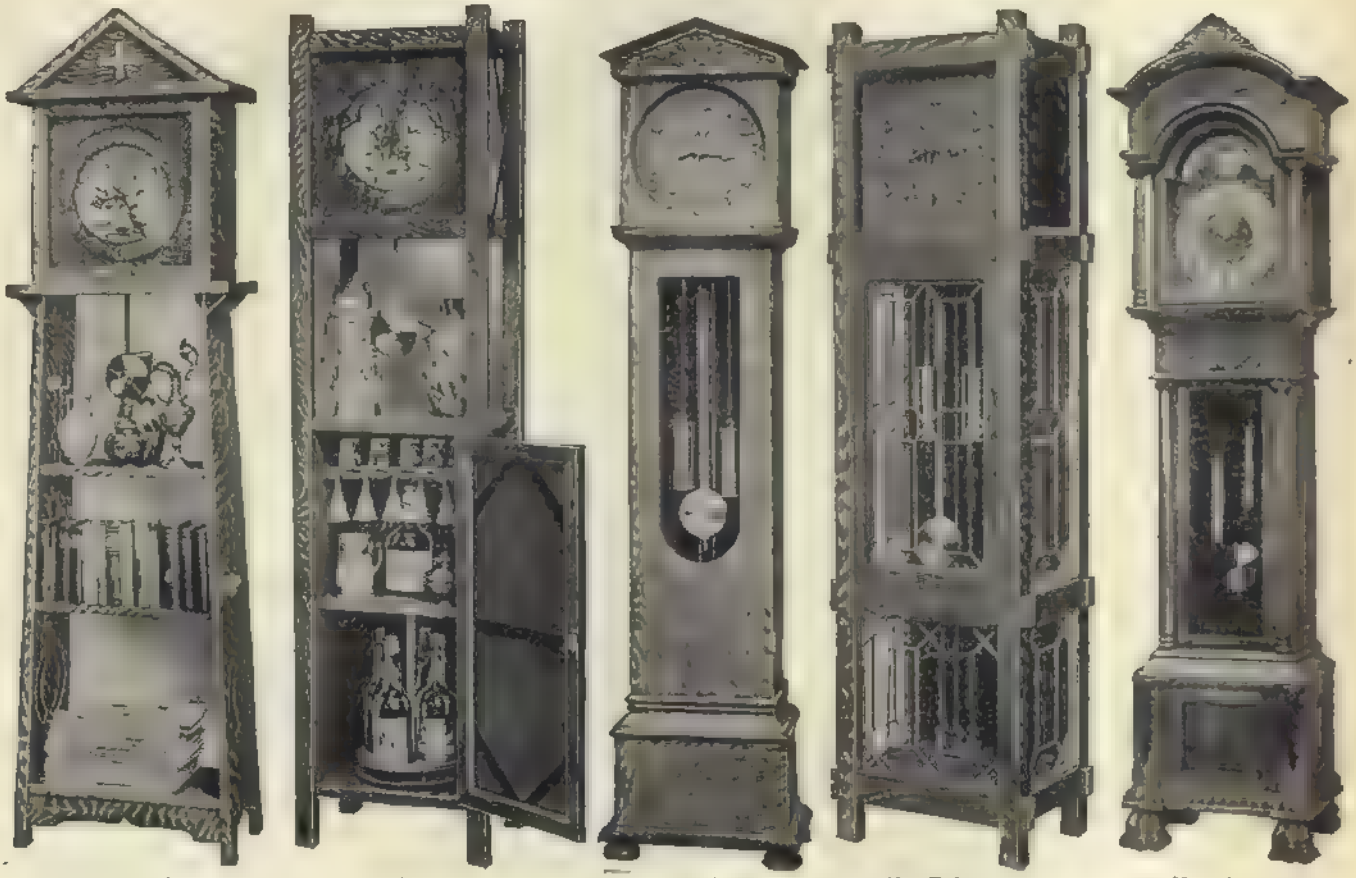
No. 143 No. 125.

No. 143—3 ft., nickel plated brass case, ¼ in. steel tape, marked in 16ths, spring wind, with center stop.....per dozen $ 8 00
No. 125—5 ft, leather case, silver trimmings, ¼ in. steel tape, marked in 16ths patent spring, with stop.....per dozen 18 00
The cases for No. 125 tapes are made with metal lined leather of the very best quality and in attractive assorted colors. They are spring wind, with center stop, and all trimmings are silver plated. Each tape is put up in a handsome embossed paper box, with directions for using.
NO 143 HALF DOZEN; NO. 125, ONE IN A BOX HALF DOZEN IN A CARTON. AVERAGE WEIGHT 1 LB. PER DOZEN.

No 280. No 290.

No. 280—5 ft., nickel plated steel case, patent spring, with stop, ⅜ in. steel tape.....per dozen $16 00
No. 290—5 ft., nickel plated steel case, patent spring, with stop, ¼ in steel tape, with centimeters and inches, per dozen..... 15 00
NO. 280, ONE DOZEN; NO. 290, ONE IN A BOX AVERAGE WEIGHT 1½ LBS. PER DOZEN.

HALL CLOCKS.



Rembrandt. Holbein. Munich. Van Dyke. With Leaded Glass Majestic.

Quartered Oak, Finished in Weathered, Flemish, Fumed, Austrian, Early English, Antwerp, and Golden Oak Waxed, Antwerp and Golden Oak Polish, and Antwerp Oak Dull.

Rembrandt—Height 78 in., width 21 in., depth 12 in., spring movement, 8 day, half and hour strike, key wind, cathedral gong, brass pendulum ball, pyroetched dial, blue steel hands, weathered oak, - - - - - - - - - - - - each $32.00
All other finishes, - " 36 00

Holbein Height 72 in., width 17 in., depth 9 in., spring movement, 8 day, half and hour strike, key wind, cathedral gong, brass pendulum ball, pyroetched dial, blue steel hands, cellarette compartment in bottom, colored opaque glass in door, weathered oak, - - - - - - - - - - - - - - each 36 00
All other finishes, - 40 00
Colonial glass for above, extra, - 5 00

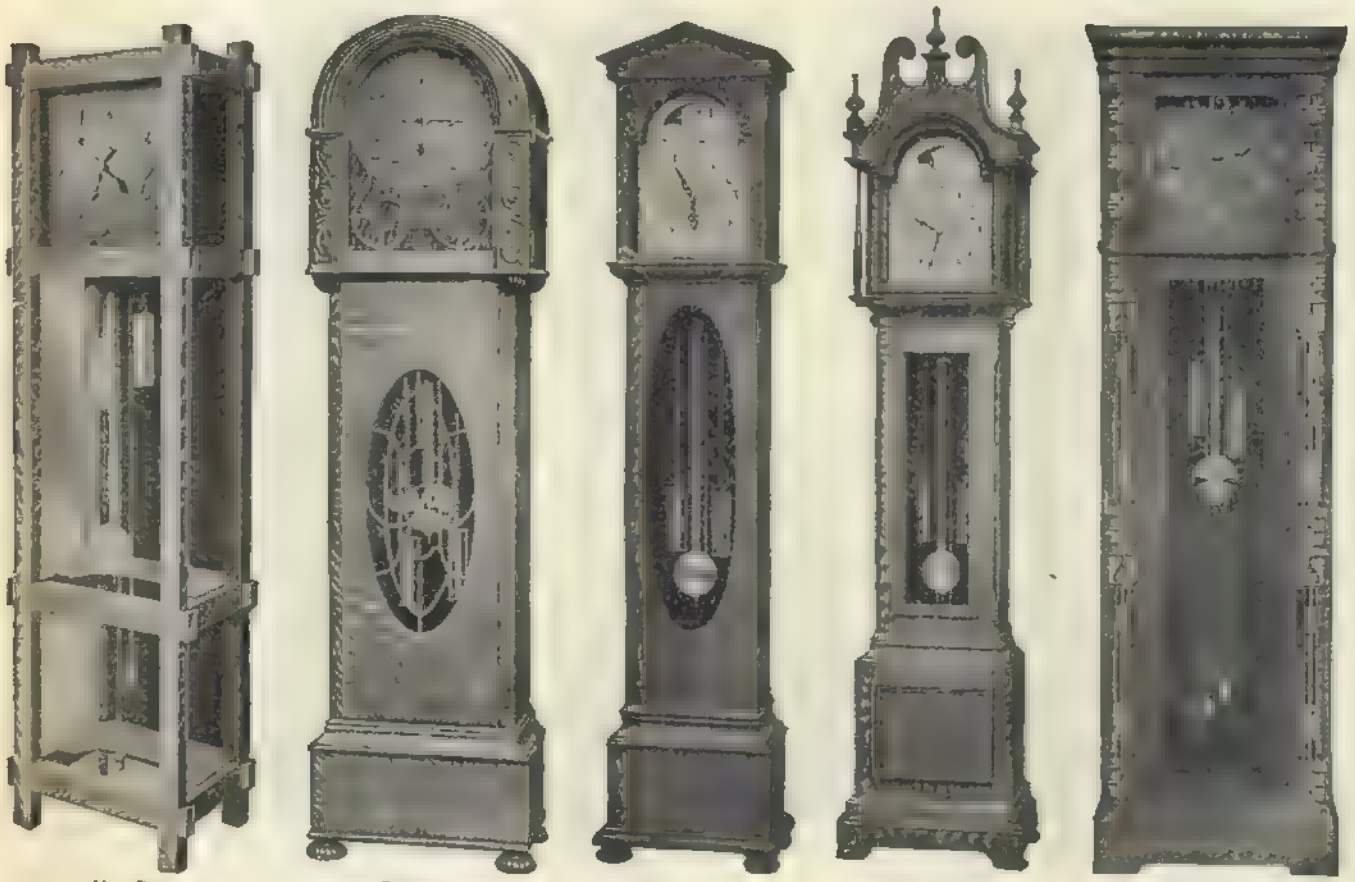
Munich Height 82 in., width 20 in., depth 12 in., 8 day, half and hour strike, chain wind, deep sounding cathedral gong, solid cast brass polished hands, brass cylindrical weights, bevel plate glass in door, 3-ply quartered oak dial, same finish as rest of case, raised solid brass polished numerals, all finishes, - - - - - - - - - - - - - - - - each 64.00

Van Dyke—With leaded art glass, height 74 in., width 20½ in., depth 13½ in., weight movement, 8 day, half hour strike, chain wind, cathedral gong, solid cast brass polished hands and brass cylindrical weights, dial is 3-ply quartered oak in same finish as balance of case, with raised solid brass polished numerals, solid mahogany polished or dull, - - - - - - - - - - each 85 00
All other finishes, on quarted oak, - 72 00

Majestic Height 91 in., width 23 in., depth 6 in., 8 day half and hour strike key wind, brass cylindrical weights extra heavy cathedral gong beats seconds, dead beat escapement retaining power solid brass polished movement frames, moon's phases, heavy plate brass dial heavily gold plated raised silvered hour ring heavy gilded, satin finish numerals beveled plate glass in door panel, solid mahogany only, dull or polished, - each 80.00

Always state finish wanted.

HALL CLOCKS.



Van Dyke Empire Cherbourg. Plymouth. Viennese.

Quartered Oak, Finished in Weathered, Flemish, Fumed, Austrian, Early English, Antwerp and Golden Oak Waxed, Antwerp and Golden Oak Polished, and Antwerp Oak Dull.

VanDyke—Height 74 in., width 20½ in., depth 13½ in., 8 day, half and hour strike, chain wind, deep sounding cathedral gong, solid cast brass polished hands, brass cylindrical weights, 3-ply quartered oak dial, same finish as balance of case, raised solid brass polished numerals, solid mahogany, dull or polish finish, - - - - - - - - - - - - each $58.00
All other finishes, - " 48.00

Empire—Height 79 in., width 20 in., depth 12 in., 8 day, half and hour strike, chain wind, deep sounding cathedral gong, solid cast brass polished hands, brass cylindrical weights, 3-ply quartered oak dial, same finish as rest of case, raised solid brass polished pointed numerals, leaded art glass in door and over dial, all finishes, - - - - - - - - - - - - each 85.00

Cherbourg—Height 86 in., width 20 in., depth 12 in., 8 day, half and hour strike, combined key and chain wind, deep sounding cathedral gong, beveled plate glass in door, lantern pinion regulator, moon's phases, heavy brass dial hand somely etched and gold plated, brass cylindrical weights, Arabic numerals, all finishes, - - - - - - - - - - - - each 84.00

Plymouth—Height 98 in., width 20 in., depth 14 in., 8 day, half and hour strike, key and chain wind, deep sounding cathedral gong, lantern pinion regulator, moon's phases, beveled plate glass in door, heavy brass dial handsomely etched and gold plated, brass cylindrical weights, Arabic numerals, finished only in solid mahogany, polished and dull, - - - - - - - - each 125.00

No. 339 Viennese—Height 82 in., width 25½ in., depth 14 in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, cathedral gong, brass pendulum rod and hands, quartered oak dial with inlay brass numerals, inlay in marquetry of imported Austrian woods, all finishes, - - - - - - - - - - - - each 110.00

Always state finish wanted.

RIFLES.

Marble's "Game Getter" Gun. Two Barrels, Shoots 22 Short, 22 Long and 22 Long Rifle, 44 Shot and 44 Ball Cartridges.

No. B—GAME GETTER, upper barrel .22 caliber, lower barrel .44 caliber, round blued barrels, single trigger, drop-forged blued frame, rubber grips, nickel plated tubing stock, finest case leather holster, length of barrels 12 in., equipped with lock leaf sight, ivory bead sight, w't 35 oz. ..... each $15 00

No. A—GAME GETTER, with Marble's flexible rear sight, otherwise the same as No. B. ..... " 18 00

Slot Blanks ..... extra " 25

Rear Sight Blank ..... extra " 50

This is an all around gun. It is a target rifle or pistol, a big game gun or shot gun. It has two barrels, one .22 caliber, the other .44 caliber. The .22 and .44 bullets shoot to the point blank range of 50 feet with sights set the same. There is very little recoil on account of .44 barrel being smooth bored and not choked. A .44 ball penetrates six inches of pine at 15 feet and will kill a deer or black bear at 40 to 50 yds.

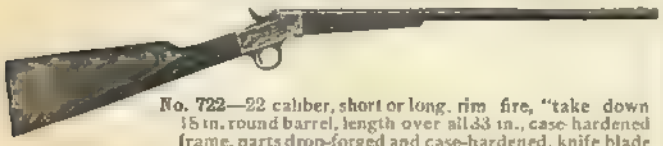
HOPKINS & ALLEN'S REPEATING.

No. 79—.22 caliber, "take down," bolt action, takes 16 short, 12 long or long rifle 20 in. round blued barrel, length over all 38½ in., all parts are drop-forged, stock is machine turned and made from hard Louisiana swamp walnut, Rocky Mountain rear sight, sporting front sight, w't about 6¼ lbs. ..... each $10.00

The rifle is taken down or put firmly together in a few seconds by loosening or tightening the screw. From the tip of the muzzle to the end of the butt there isn't a screw or a joint or an inch of metal or wood but will give the most exacting sportsman pleasure and satisfaction. The gun balances well, hangs well, fits nicely to the hand and shoulder, works fast and shoots hard and true.

TEN IN A CASE.

HOPKINS & ALLEN'S SINGLE SHOT.



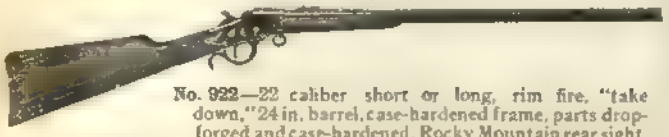
No. 722—.22 caliber, short or long, rim fire, "take down," 18 in. round barrel, length over all 33 in., case-hardened frame, parts drop-forged and case-hardened, knife blade front sight, sporting rear sight, walnut stock and fore-end, fitted with rubber butt-plate, w't about 3½ lbs. ..... each $3 50

TWENTY IN A CASE

No. 822—.22 caliber, short or long, rim fire, take down, 20 in. round barrel, length over all 35 in., case-hardened frame, parts drop-forged and case-hardened, sporting front and rear sights, beautifully grained American walnut stock, hard rubber butt-plate, w't 4 lbs. ..... each $4 50

This rifle has a positive safety arrangement. The hammer cannot strike the firing pin either in loading or carrying the gun except by intention. The hammer rebounds after firing and always rests on the safety notch.

TWENTY IN A CASE.



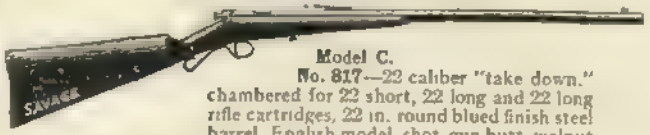
No. 922—.22 caliber, short or long, rim fire, "take down," 24 in. barrel, case-hardened frame, parts drop-forged and case-hardened, Rocky Mountain rear sight, sporting front sight, walnut stock and fore-end, thick military butt-plate, w't 5 lbs. ..... each $5.50

No. 932—.32 caliber, short or long, otherwise same as No. 922, w't 5 lbs. ..... each 5.50

No. 1922—.22 caliber, 24 in. octagon barrel, otherwise the same as No. 922, w't 5 lbs. ..... each 6 00

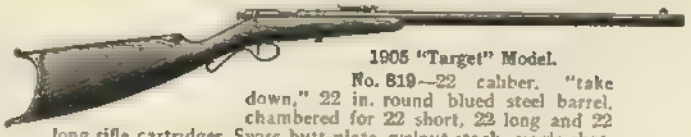
No. 2932—.32 caliber, 24 in. octagon barrel, otherwise the same as No. 922, w't 5 lbs. ..... each 6 00

SAVAGE SINGLE SHOT.



Model C.

No. 817—.22 caliber "take down," chambered for 22 short, 22 long and 22 long rifle cartridges, 22 in. round blued finish steel barrel, English model, shot gun butt, walnut stock, length of stock 14 in., equipped with adjustable rear sight and metal bead front sight, w't 4¾ lbs. ..... each $6.50



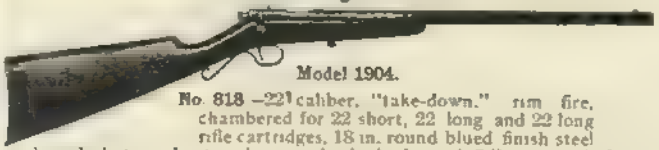
1905 "Target" Model.

No. 819—.22 caliber, "take down," 22 in. round blued steel barrel, chambered for 22 short, 22 long and 22 long rifle cartridges, Swiss butt-plate, walnut stock, single shot, set trigger, w't 4¾ lbs. ..... each $7 50

This rifle will appeal strongly to the target shooter who desires to use the inexpensive .22 caliber ammunition. The special rifling gives the greatest accuracy with these loads, and is beautifully balanced, especially for off-hand shooting. The Swiss butt-plate and heavy barrel, 22 inches in length, are two of its special features. Longer or heavier barrels cannot be supplied. More important, however, is the adjustable screw, which regulates the pull. No matter what your idea of the trigger pull may be, it may be obtained almost instantly with this new Savage device. The adjusting screw is located on the under side of trigger and may be instantly reached by taking off the stock.

As the front sight seat is standard, a variety of sights may be used.

SAVAGE JUNIOR.



Model 1904.

No. 818—.22 caliber, "take-down," rim fire, chambered for 22 short, 22 long and 22 long rifle cartridges, 18 in. round blued finish steel barrel shot gun butt, walnut stock, single shot, w't 3 lbs. ..... each $4 00

It is quickly and easily loaded, simply drop a cartridge into the receiver and close the knob, which lies near the stock and out of the way. The closing knob automatically cocks the arm, and after the cartridge has been fired, the opening movement automatically ejects the empty shell. The barrel is nicely tapered, carefully constructed and tested, a safe and accurate shooter.

TEN IN A CASE

STEVENS' LITTLE KRAG.

No. 65—.22 caliber, 20 in. round blued steel barrel, oiled walnut stock, rubber butt-plate, blued trigger guard, bead front and open rear sights, w't 3¼ lbs. ..... each $4 00

It is not only a take-down, but a model in simplicity, having but few parts, and can easily be taken apart to clean or replace injured parts. The bolt head which contains the firing pin unscrews, and a new one can be inserted at a very small expense. It is bored to take the celebrated .22 long rifle cartridges and has new style peep sights.

AIR AND TARGET RIFLES.

STERLING.

Shoots BB Shot.

No. 13—Cold rolled steel, nickel plated and polished, flat steel plunger rod, oil tempered quick acting spring, reinforced barrel, finely finished, genuine walnut stock, length 29 in., w't 1¼ lbs. per dozen..... $6 00

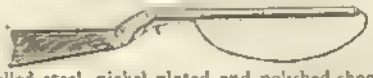
ONE DOZEN IN A BOX.

STERLING POP GUNS.

Shoots Corks and Rubber Balls.

No. 15—Cold rolled steel, nickel plated and polished, flat steel plunger rod, oil tempered quick acting spring, reinforced barrel, genuine walnut stock, length 29 in., w't 1¼ lbs.....per dozen $6 00

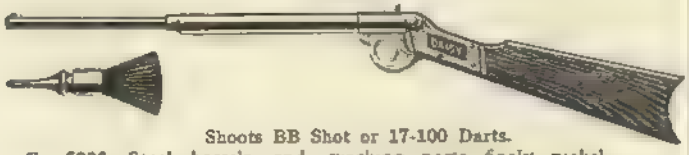
ONE DOZEN IN A CASE.



No. 16—Cold rolled steel, nickel plated and polished shoots a cork on end of string, wood stock, length 17 in., w't 6½ oz., per dozen $3.00

THREE DOZEN IN A CASE.

DAISY.



Shoots BB Shot or 17-100 Darts.

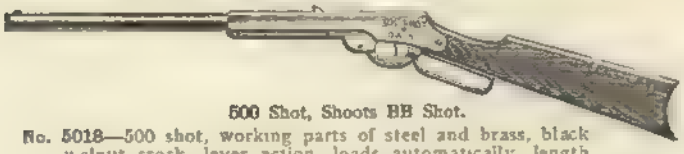
No. 5006—Steel barrels and working parts finely nickel plated, walnut stock, improved peep sight, all parts interchangeable, length 30 in., weight 2 lbs .....per dozen $12 00

17-100 Darts .....per gross $6 00

Daisy Repeater, Shoots 48 Times Without Reloading, Shoots BB Shot or 17-100 Darts.

No. 5002—Barrel and working parts entirely of steel, all parts interchangeable, magazine and shooting barrel can be instantly removed, walnut stock, improved peep sight, each rifle carefully sighted and tested, finely nickel plated, length 30 in., weight 2 lbs. .....per dozen $15.00

ONE DOZEN IN A CASE



500 Shot, Shoots BB Shot.

No. 5018—500 shot, working parts of steel and brass, black walnut stock, lever action, loads automatically, length 32 in., weight 2⅝ lbs. .....per dozen $21.00

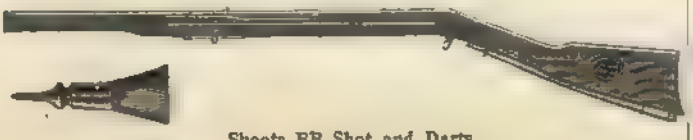
1,000 Shot, Shoots BB Shot.

No. 5012—1,000 shot, nickel plated, working parts of steel and brass, walnut stock, lever action, loads automatically, length 36 in., weight 3 lbs .....per dozen $24 00

Nos. 5018 and 5018 are magazine guns with working parts so arranged that anyone can take them apart and put them together. They shoot accurately and with great force.

ONE DOZEN IN A CASE.

CHICAGO.

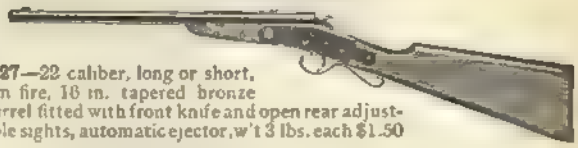


Shoots BB Shot and Darts.

No. 5003—Cherry stained, a perfect device for holding shot tight in place, impossible to get a shot lodged in the barrel, length 32 in., weight 1¾ lbs.....per dozen $12.00

ONE DOZEN IN A CASE.

HAMILTON.

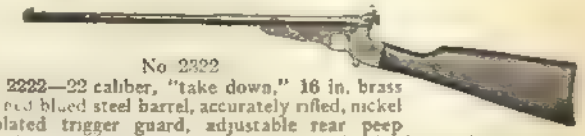


No. 27—22 caliber, long or short, rim fire, 16 in. tapered bronze barrel fitted with front knife and open rear adjustable sights, automatic ejector, w't 3 lbs. each $1.50

No. 027—22 caliber, long or short, round walnut stock and fore end, otherwise same as No. 27, w't 3 lbs.....each $1 75

This model 27 has a hammer action exceedingly simple and of few parts. A solid breech-block makes action absolutely safe from rear explosion. The barrel is rifled with great care and has a built-up steel jacket which gives it great strength, durability and accuracy

TEN IN A CASE.



No 2322

No. 2222—22 caliber, "take down," 16 in. brass lined blued steel barrel, accurately rifled, nickel plated trigger guard, adjustable rear peep sight, automatic extractor, walnut stock, blued steel butt-plate, length 28½ in., w't 1¾ lbs.....each $2 00

No. 2322—22 caliber, take down, 20 in. brass lined blued steel barrel, accurately rifled, adjustable rear peep sight, improved loading mechanism, automatic extractor, lever action, extra quality walnut stock, length 33 in., w't 2 lbs.....each 2.50

TEN IN A CASE.

HAMILTON BOLT ACTION.

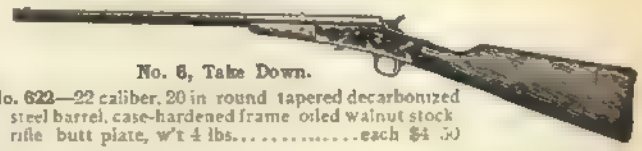
No. 2422—22 caliber, rim fire, chambered for 22 long or short cartridges, 21¾ in. round blued steel barrel, genuine walnut stock, blued steel trigger guard and butt-plate, w't 3½ lbs.....each $3 00

Bolt action type is deservedly popular for combining simplicity of action, the quality of rifling unsurpassed, with accuracy, safety and strength of shooting. The barrel is finely tapered and beautifully finished in blue-black gun finish. The action is automatic, both in putting cartridges into the chamber and ejecting the exploded shell. To open action, throw up the thumb-lever and pull back the bolt, thus opening aperture on top of barrel.

To load, simply drop cartridge into aperture thus opened, push bolt forward, automatically putting cartridge into chamber, and throw thumb-lever to the right, which securely locks it, thus making the entire action of rifle absolutely safe under all conditions.

TEN IN A CASE.

REMINGTON SINGLE.



No. 6, Take Down.

No. 622—22 caliber, 20 in round tapered decarbonized steel barrel, case-hardened frame oiled walnut stock rifle butt plate, w't 4 lbs.....each $4 50

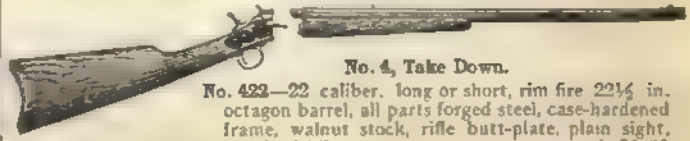
No. 632—32 caliber, otherwise same as No. 622 w't 4½ lbs . .each $4 50

Please note that Nos. 622 and 632 are fitted with rear peep sight on the tange of rifle. This adds quite a feature to these rifles.

This rifle is especially designed to meet the demand for a light weight and reliable "take down" rifle at a moderate price.

The action is a modified type of the Remington system. Material and workmanship the best. Accurately bored and rifled. Genuine walnut stock and fore-end. Barrel detached from stock by loosening thumb screw. Adapted to 22 short, 22 long rim fire cartridges, conical ball, bullet breech caps, 32 short and 32 long.

TEN IN A CASE.



No. 4, Take Down.

No. 422—22 caliber, long or short, rim fire 22½ in. octagon barrel, all parts forged steel, case-hardened frame, walnut stock, rifle butt-plate, plain sight, automatic shell ejector, w't 4¼ lbs.....each $6.00

No. 432—32 caliber, long or short, rim fire, 24 in. octagon barrel, all parts forged steel, case-hardened frame, walnut stock, rifle butt-plate, plain sight, automatic shell ejector, w't 4¼ lbs...each 6.00

TEN IN A CASE.

UNHANDLED AXES.

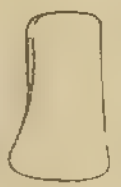
REVONOC SINGLE BIT.

No. 2.

Forged Steel Body, Extra Quality Crucible Tool Steel Bit, Gun-Metal Black Finish, with Deep Etched Polished Name Plate. A Most Unique and Attractive Finish. Carefully Hand Tempered Over Natural Gas, Edge Sharpened ready for use.

No. 1 REVONOC—Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	52 lbs.
Per dozen	$15.00	15 50
Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	51	59 lbs.
Per dozen	$15 50	18 00



No. 2 REVONOC—Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	54 lbs
Per dozen.	$15.00	15.50
Weights, Assorted, lbs.		4 to 5
W't per doz.		59 lbs.
Per dozen		$16.00

ONE-TWELFTH DOZEN IN A CARTON; ONE DOZEN IN A CASE.

MARICOPA SINGLE BIT.

Forged Steel Gold Bronzed Body, Crucible Steel Polished Bit, Well Tempered and Sharpened. A good Serviceable Axe at a Very Low Price.

No. 42.

No. 41—Maricopa Michigan Pattern.

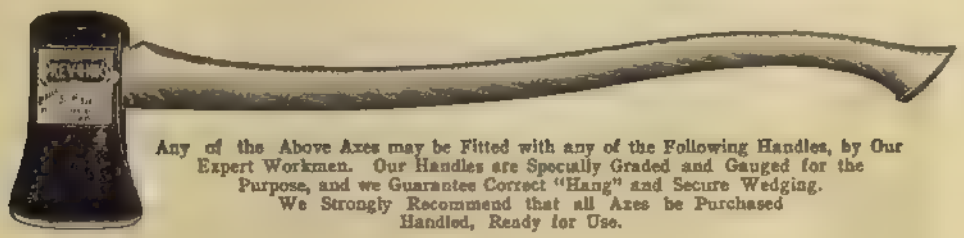
Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen.	$9.50	10.00
Weights, Assorted, lbs		4 to 5
W't per doz.		59 lbs.
Per dozen.		$10.50

No. 42—Maricopa Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen.	$9.50	10 00
Weights, Assorted, lbs.		4 to 5
W't per doz.		59 lbs.
Per dozen.		$10 50

ONE DOZEN IN A CASE.

HANDLED AXES.



Any of the Above Axes may be Fitted with any of the Following Handles, by Our Expert Workmen. Our Handles are Specially Graded and Gauged for the Purpose, and we Guarantee Correct "Hang" and Secure Wedging. We Strongly Recommend that all Axes be Purchased Handled, Ready for Use.

REVONOC SINGLE BIT.

Add the Following Extras to the Prices of Unhandled REVONOC Axes Above:

No. A	—With [illegible] regular oval handles fitted... extra per dozen	$9 00
No. B	—With [illegible] regular octagon handles fitted " "	9 00
No. C	—With REVONOC regular oval handles fitted... " "	7.50
No. D	—With REVONOC regular octagon handles fitted " "	7.50
No. CC	—With REVONOC slim lumbermen's handles fitted " "	7 50
No. DD	—With REVONOC oak regular oval handles fitted " "	5 50
No. E	—With Hib-Spe-Bar regular oval handles fitted " "	5 50
No. F	—With Hib-Spe-Bar regular octagon handles fitted " "	5 50
No. EE	—With Hib-Spe-Bar slim lumbermen's handles fitted extra per dozen	5 50
No. FF	—With "Hib-Spe-Bar" oak regular oval handles fitted, extra per dozen	4 50

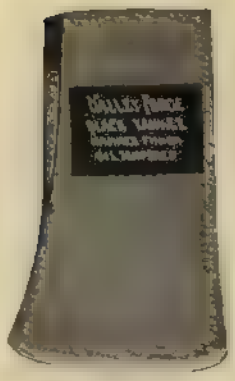
MARICOPA SINGLE BIT.

Add the Following Extras to the Prices of Unhandled Maricopa Axes Above:

No. E	—With Hib-Spe-Bar regular oval handles fitted, extra per dozen	$5.00
No. F	—With Hib-Spe-Bar regular octagon handles fitted, extra per dozen	5.50
No. EE	—With Hib-Spe-Bar slim lumbermen's handles fitted, extra per dozen	5 50
No. FF	—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50
No. J	—With Ilsanoy regular oval handles fitted, extra per dozen	4 00
No. K	—With Cruso regular oval handles fitted. " "	3 50
No. S	—With ebonized oval handles fitted. " "	3 50

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 18 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes, always specify the brand and weight of the axe, and prefix to the axe number the letter designating the handle thus: "1 dozen No. J41 Maricopa axes, 3 to 4 lbs.," which shows that No. 41 Maricopa Michigan Pattern axes are desired, fitted with No. J Ilsanoy oval handles.

UNHANDLED AXES.



No 62.

VALLEY FORGE.

Forged Steel Body, Crucible Steel Bits, Gun-Metal Black Finish. A First Quality Axe at a Medium Price. Made for Service, not for Style. Well Tempered and Sharpened.

No. 520.

PIONEER.

Forged Steel Body, Crucible Steel Bits, Full Polished and Labeled, with Pressed "Perfect" Bevels, Blue Lacquered, Well Tempered and Sharpened. A Very Popular Style, and of High Quality.

SINGLE BIT.

No. 61—Valley Forge Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	52 lbs.
Per dozen	$10.50	11 00
Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs
Per dozen	$11.00	11 50

No. 62—Valley Forge Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
W't per doz.	49	54	59 lbs.
Per dozen	$10.50	11.00	11 50

DOUBLE BIT.

No. 520—Valley Forge Western Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen	$15.00	15.50
Weights, Assorted, lbs.		4½ to 5½
W't per doz.		64 lbs
Per dozen		$16 00

ONE DOZEN IN A BOX

SINGLE BIT.

No. 51—Pioneer Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	52 lbs.
Per dozen	$15.00	15.50
Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen	$15.50	16.00

No. 52—Pioneer Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	
W't per doz.	49	54 lbs.	
Per dozen	$15.00	15.50	
Weights, Assorted, lbs.	4 to 5	4½ to 5½	
W't per doz.	59	64 lbs.	
Per dozen	$16 00	16 50	

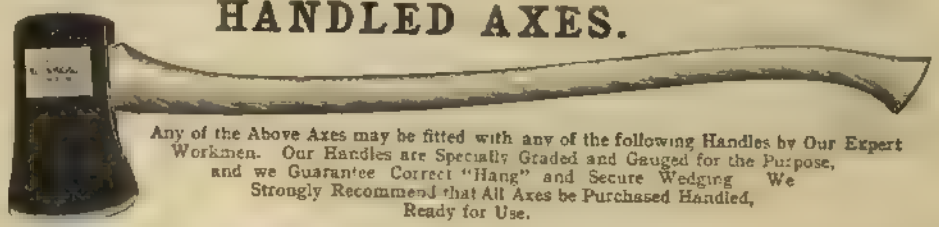
DOUBLE BIT.

No. 520—Pioneer Western Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen	$19 50	20 00
Weights, Assorted, lbs.		4½ to 5½
W't per doz		64 lbs
Per dozen		$20.50

ONE DOZEN IN A BOX

HANDLED AXES.



Any of the Above Axes may be fitted with any of the following Handles by Our Expert Workmen. Our Handles are Specially Graded and Gauged for the Purpose, and we Guarantee Correct "Hang" and Secure Wedging We Strongly Recommend that All Axes be Purchased Handled, Ready for Use.

PIONEER OR VALLEY FORGE SINGLE BIT.

Add the Following Extras to the Prices of Unhandled Single Bit Axes Above.

No. A—With GVD regular oval handles fitted	extra per dozen	$9 00
No. B—With GVD regular octagon handles fitted	" "	9 00
No. C—With [illegible] regular oval handles fitted	" "	7 50
No. D—With [illegible] regular octagon handles fitted	" "	7 50
No. CC—With [illegible] slim lumbermen's handles fitted	" "	7 50
No. DD—With [illegible] oak regular oval handles fitted	" "	5 50
No. E—With Hib-Spe-Bar regular oval handles fitted	" "	5 50
No. F—With Hib-Spe-Bar regular octagon handles fitted	" "	5 50
No. EE—With Hib-Spe-Bar slim lumbermen's handles fitted extra per dozen		5 50
No. FF—With Hib-Spe-Bar oak regular oval handles fitted extra per dozen		4 50
No. J—With Il-a-noy regular oval handles fitted	extra per dozen	4 00
No. K—With Cruso regular oval handles fitted	" "	3 50

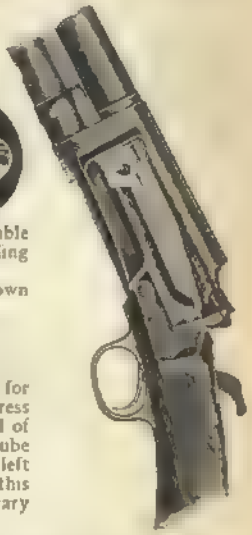
PIONEER OR VALLEY FORGE DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled Double Bit Axes Above.

No. T—With GVD regular oval handles fitted	extra per dozen	$9.00
No. L—With [illegible] regular oval handles fitted	" "	7.50
No. LL—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen		5.50
No. P—With Hib-Spe-Bar regular oval handles fitted, extra per dozen		5.50
No. N—With Hib-Spe-Bar regular octagon handles fitted, extra per dozen		5 50
No. PP—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen		4.50
No. R—With Il-a-noy regular oval handles fitted	extra per dozen	4 00

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 16 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes, always specify the brand and weight of the axe, and prefix to the axe number the letter designating the handle thus: "1 dozen No J51 Pioneer axes, 3 to4 lbs," which shows that No. 51 Pioneer Michigan Pattern axes are desired, fitted with No. J Il-a-noy oval handles

MARLIN REPEATING SHOT GUNS.



MODEL 24 TAKE DOWN.

The Model 24 has the Marlin solid top, side ejector and closed-in breech. It cannot close up with rain, snow, sleet, mud or dirt to run into the action and swell the shells in magazine, dirt, leaves, twigs and sand are also excluded from the action. The mechanism is simple and strong; it has one-third less parts than any other make of repeater; and the double extractors pull any shell. The automatic recoil safety device makes it the safest breechloading gun built.

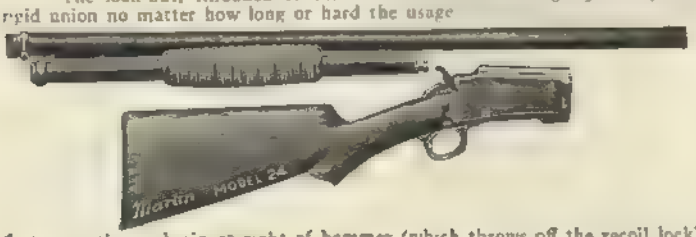
The steel-lined, metal-capped forearm and the simplest, strongest and quickest take-down construction are special features of the Model No 24

To take down the gun for cleaning or packing: Press the latch at front end of magazine and draw tube forward; the catch on left side holds the tube in this forward position. The forearm with action bar will then slide forward, and it is only necessary to unscrew the barrel.

This improved take-down construction does away with the forearm screws and other small parts, there are no sharp edges or corners, the gun can be taken apart in ten seconds anywhere. Yet the union of barrel and frame is always as strong and rigid as in a solid frame gun

The barrel turns into the frame with a large square cut thread that leaves exactly the same amount of metal at this point of greatest strain, with exactly the same distribution as in a solid frame, non-take-down gun.

The lock-nut, threaded to turn on the barrel and tightly clamped abutting the front end of frame, takes up all wear and insures a firm and rigid union no matter how long or hard the usage

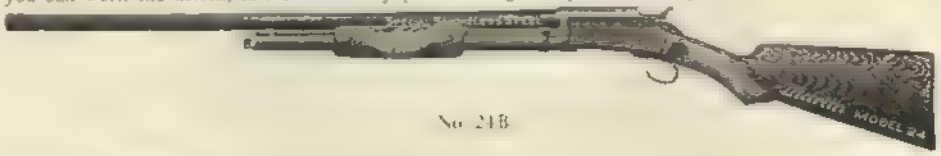


The improved automatic recoil block hooks onto the locking bolt when closing the action and holds the gun firmly locked until after the explosion of the cartridge, when it is instantly and automatically released by the recoil.

It prevents the possibility of opening the action just as the cartridge is exploding and removes all danger from hang-fires, for no matter how long it may take the cartridge to explode after the primer is struck by the firing pin, the gun remains tightly locked until after the explosion.

To operate the gun when empty or to eject a defective cartridge, first press the push-pin at right of hammer (which throws off the recoil lock), then operate in the regular manner

This recoil block and the safety contrivances make the Model 24 the safest breechloading gun built, for you can hold back the trigger and work the gun just as fast as you can work the action, and still be fully protected against premature explosion and hang-fires



No. 24B

No. 24A—12 gauge, 6 shots, special rolled steel barrel, frame cut from solid drop forging, blued finish frame, fine straight grained American walnut stock, hard rubber butt plate, chamber for 2½ or 2¾ in. shells, specially bored for both black and smokeless powders, full choke, modified choke or cylinder bored, length of barrel 26, 28, 30 or 32 in., length of stock 13½ in., 1⅛ in. drop at comb, 2½ in. drop at heel, w't 7½ to 7¾ lbs. ..... each $23.25

The barrel has a tensile strength of 100,000 lbs. to the square inch. All full choked barrels are guaranteed to pattern more than 326 pellets of No. 8 chilled shot in a 30 in. circle at 40 yds

The [illegible] is of a new shape that fills the barrel and fore-hand to the shoulder. It is made of black walnut, seared for quick handling, fine [illegible] speed, engraved inside with a steel cartridge on the ends by metal pieces locked in place and [illegible] hold it in place even if it should split

No. 24B 12 gauge, special smokeless steel barrel, grip and fore-end handsomely checked by hand, otherwise the same as No. 24A, length of barrel 26, 28 or 30 in. w't 7½ to 7¾ lbs. ..... each $30.75

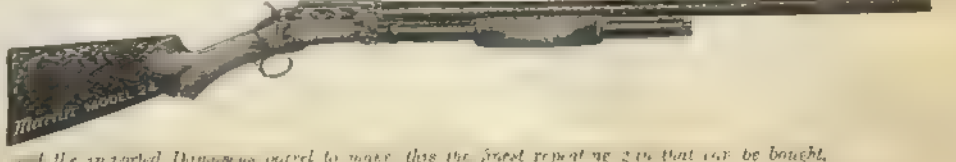
The grip and the fore-end are both [illegible] checked by hand, which adds [illegible] and sighting, as well as in the rapid manipulation of the action. It is intended for the most [illegible] at long [illegible] at any [illegible] expense or inconvenience

The barrel of this gun is made from the finest quality of steel obtainable and made especially for this use. It has a very high elastic limit and a tensile strength of about 100,000 lbs. to the square inch. Special care is given to the boring of this grade.

No. 24C—12 gauge special smokeless steel barrel stock and fore-end are of selected fancy figured walnut, extra fine finish on the wood, stock and fore-end are neatly checkered by hand, action is tastily ornamented with a good quantity of hand engraving, otherwise the same as No. 24A, length of barrel 26, 28 or 30 in., w't 7½ to 7¾ lbs. ..... each $40.80

The imported Circassian walnut stock is specially selected for figure and color and oil finished by the London process which gives a rich dull surface and brings out all the beauty of the grain and does not show scratches like highly polished wood.

The elaborate engraving and checking are the highest type of hand work by experts of long [illegible] and [illegible] with the [illegible]



the imported Damascus barrel to make this the finest repeating gun that can be bought.

No 24D—12 gauge imported Damascus barrel, imported French walnut stock specially selected for [illegible] and all screws in the action are of tool steel and heavily gold plated, elaborately engraved and checked by hand otherwise the same as No. 24A, length of barrel 26, 28 or 30 in., w't 7½ to 7¾ lbs. ..... each $90.00

GUARANTEED FREE FROM IMPERFECTIONS IN MATERIAL AND WORKMANSHIP

MARLIN REPEATING SHOT GUNS.

MODEL 16, "TAKE DOWN."

The Model 16 is not a 12-gauge gun with a 16-gauge barrel fitted, but is properly proportioned in every part, finely balanced, very quick and easy in operation and it is the only light-weight repeating shot gun in the world. It is fully as effective in all ordinary forms of bird and small game shooting as any 12-gauge gun, and, by reducing the weight of gun and shells carried, it adds greatly to the enjoyment of the day's sport.

No. 16A—16 gauge, 6 shots, special rolled steel barrel, bored for black or nitro powders, blued frame, pistol grip, walnut stock, hard rubber butt plate, length of stock 13½ in., 1⅝ in. drop at comb, 2½ in. drop at heel, length of barrel 26 or 28 in., w't 6⅛ to 6¼ lbs. ..... each $25.00

This is a light quick-handling, finely balanced gun, built similar to the well known 12-gauge Marlin repeater but smaller, neater and trimmer in every part, to handle the smaller shells. Uses black and smokeless loads in 2 ¾ or 2 ½ inch shells, has all the range and penetration of a 12-gauge gun and is the only light-weight repeating shotgun in the world. A superior gun for birds, rabbits, squirrels, for ladies' use, for the boy, and for the man who appreciates the reduced weight of gun and shells to be carried.

No. 16B—16 gauge, 6 shots, special smokeless steel barrel, bored for black or nitro powders, blued frame, walnut pistol grip stock and fore-end, grip and fore-end both handsomely checked by hand, hard rubber butt plate, length of stock 13½ in., 1⅝ in. drop at comb, 2½ in. drop at heel, length of barrel 26 or 28 in., w't 6⅛ or 6¼ lbs ★ ..... each $32 75

This gun has a "Special Smokeless Steel" barrel which has a very high elastic limit, and a tensile strength of about 100,000 pounds to the square inch. Special attention is given to the boring and proving of this grade. The action is reliable, simple and easy to operate. The grip of the stock and fore-end are both handsomely checked by hand, which not only adds in holding and sighting, but assists in the rapid manipulation of the action.

No. 16C—16 gauge, stock and fore-end are of a selected quality of fancy figured walnut, extra fine finish given to wood, stock and fore-end are neatly checked by hand, action is tastily relieved and ornamented with a good quality of hand engraving, otherwise the same as No. 16B, length of barrel 26 or 28 in., w't 6⅛ to 6¼ lbs ★ ..... each $44.50

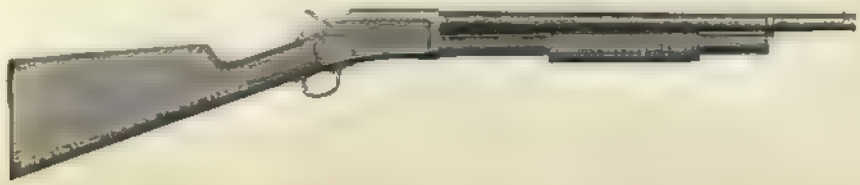
No. 16D—16 gauge, high quality Damascus barrel, specially bored and finished, stock and fore-end are finest quality Circassian walnut, which is finely finished by the London process of filling, giving it a rich dull finish that does not show scratches as plainly as the highly polished wood, checking on stock and fore-end the very finest hand work, screws and triggers are of tool steel, heavily gold plated, otherwise the same as No. 16B, length of barrel 26 or 28 in., w't 6⅛ to 6¼ lbs ★ ..... each 00 00

We do not carry Nos. 16B, 16C and 16D in stock, and will ship all orders from factory.

MODEL 26.

No. 26A—12 gauge, 6 shots, special rolled steel barrel, bored especially for black or smokeless powders, chambered for 2 ¾ to 2¾ in. shells, solid frame, straight grip stock, length of barrel 26, 30 or 32 in., tab choke reamed, w't 7 to 7¼ lbs. ..... each $21 00

This gun is extremely clean, simple and light, has the double extractor and improved safety construction and is made of the best material in every part.



No. 26AR—RIOT GUN, 12 gauge, 6 shots, for buckshot loads, cylinder bored, length of barrel 20 in., w't 6¼ lbs. ..... each $21 00

This is an extra short and light gun, open bored, for buckshot especially. It is a most deadly arm for guards of all kinds, watchmen and express messengers, and is kept handy in many banks and households as a protection against burglars, thieves and robbers.

RIFLES.

STANDARD REPEATING.

No. 1H—30-30 caliber 25 in barrel six shots take-down, round tapered ordnance steel barrel, positive safety fitted with ivory tip front and sporting rear sights, designed for 30-30 caliber rimless high power smokeless cartridges, bronze metal butt-plate and action slide, fine Circassian walnut stock, shot gun butt, length of stock 13¼ in., drop 2½ in., w't 7 lbs.....each $30 00

This is a new hand operated repeating rifle which is particularly adapted for high power ammunition. It has a strong action, is simple in construction and is a superior arm in every respect. All rifles are thoroughly tested before leaving the factory and a guarantee for accuracy of fire and perfection of material and workmanship go with each rifle.

STANDARD AUTOMATIC.

No. 1A—30-30 caliber, 25 in. barrel six shots, round tapered ordnance steel barrel, positive safety, fitted with ivory tip front and sporting rear sight, designed for 30-30 caliber rimless high power smokeless cartridges, bronze metal butt-plate and action slide, fine Circassian walnut stock, shot gun butt, length of stock 13¼ in., drop 2½ in., w't 7¾ lbs .....each $35 00
No. 2A—32 caliber, otherwise the same as No. 1A, w't 7¼ lbs. " 35 00

This is a hammerless automatic rifle with great velocity, long range and flat trajectory. The solid breech-loading mechanism conserves all the energy of the explosion to impart the greatest possible velocity to the projectile, and the barrel being rigid with the frame and receiver, insures accuracy at both long and short range.

The rifle is operated by gas pressure in the following manner: the bullet, moving through the barrel, driven by power of the explosive gas, passes over a small port near the muzzle. This port admits about six pounds of gas pressure which acts upon a piston, causing a rearward motion which is transmitted through connecting rods to the bolt cams. This rearward motion unlocks the bolt, withdraws and ejects the empty shell, and compresses the main spring. The bullet passing out at the muzzle instantly relieves the gas pressure on the piston and permits the main spring to impart a forward motion to the bolt, placing the next cartridge in the chamber, and locking and cocking the rifle. The operator has only to maintain his aim and press the trigger until the magazine is empty

The mechanism is strong and simple, with few parts, and is not easily broken or rendered inoperative. Barrels heretofore used have a record of many more shots than the life of the average rifle. The barrels are practically indestructible for sporting purposes if factory loaded ammunition of any standard make be used.

SAVAGE MAGAZINE.

No. 7422—22-caliber, hammerless, chambered for 22 short, 22 long and 22 long rifle cartridges, rim fire, 24 in. octagon barrel, steel rifle butt-plate, pistol grip, 7 shots, w't 5⅝ lbs., with extra magazine .....each $14 00
Extra Magazines, for No. 7422 rifle..... " 40

This rifle has many improvements over the ordinary 22 calibers, including box magazine, safety catch, hammerless action, weight and construction.

SAVAGE MAGAZINE.

No. 7106 —25-35 caliber, center fire 26 in. round barrel steel shot gun butt-plate, 6 shots, w't 7½ lbs .....each $20 00
No. 7302 —.303 caliber center fire 22 in. round barrel, steel shot gun butt-plate, 6 shots, w't 6⅞ lbs.....each 20 00
No. 7306 —.303 caliber, center fire, 26 in. round barrel, steel rifle butt-plate, 6 shots, w't 7½ lbs .....each 20 00
No. 7502 —30-30 caliber center fire, 22 in. round barrel, shot gun butt, 6 shots, w't 7¼ lbs.....each 20 00
No. 7506 —30-30 caliber, center fire, 26 in. round barrel, steel rifle butt-plate, 6 shots, w't 7½ lbs .....each 20 00
No. 7406½ —.303 caliber, center fire, 26 in. half octagon barrel, rifle butt, 6 shots, w't 7¾ lbs .....each 21 50
No. 7608½ —30-30 caliber, center fire, 26 in. half octagon barrel, rifle butt, 6 shots, w't 7¾ lbs .....each 21 50
No. 7206 —25-35 caliber, center fire, 26 in. octagon barrel, steel rifle butt-plate 6 shots, w't 7¾ lbs.....each 21 50
No. 7406 —.303 caliber, center fire, 26 in. octagon barrel, rifle or shot gun butt, 6 shots, w't 7½ lbs.....each 21 50
No. 7406PG—Pistol grip, otherwise same as No 7406..... " 24 00
No. 7606 —30-30 caliber, center fire, 26 in. octagon barrel, rifle or shot gun butt, 6 shots, w't 7¾ lbs.....each 21 50

Savage rifles are accurately made, finely fitted, and beautifully finished The barrel is blued, frame blued and polished, lever and butt-plate case-hardened. Fine walnut stock, sporting front and rear sights.

CARBINES.

Model 1899.

No. 7320—.303 caliber, center fire, 20 in. round barrel, 6 shots w't 7¼ lbs.....each $20 00
No. 7520—30-30 caliber, center fire, 20 in. round barrel, 6 shots, w't 7¼ lbs.....each 20 00

The rifle can be alternately and automatically used as a single loading and as a magazine rifle

A numerical indicator exposed through an opening in the frame always shows the number of cartridges contained in the magazine, and also shows when the magazine is empty.

Magazine cartridges can be safely removed from the rifle without cocking the firing mechanism. Cartridges are loaded into the magazine through the breech opening, thereby obviating any necessity for hinged trap doors, fillers or cut-offs. Dangers arising from the use of high explosive powders or shells having defective heads or primers are wholly overcome by providing a solid steel breeching shoulder between the eyes and head of the operator and the chamber, making it impossible for the powder gas to escape to the rear.

SAVAGE MAGAZINE TAKE-DOWN.

Model 1899.

No. 7306TD—Take down, 303 caliber, center fire, 26 in. round barrel, steel rifle butt-plate, 6 shots, w't 7¾ lbs.....each $25 00
No. 7302TD—Take down 303 caliber, center fire, 22 in. round barrel, steel rifle butt-plate, 6 shots, w't 7½ lbs.....each 25 00
No. 7506TD—Take down, 30-30 caliber, center fire, 26 in. round barrel, steel rifle butt-plate, 6 shots, w't 7¾ lbs.....each 25 00
No. 7502TD—Take down, 30-30 caliber, center fire, 22 in. round barrel steel rifle butt-plate, 6 shots, w't 7½ lbs.....each 25.00

MODEL 1899, FEATHERWEIGHT.

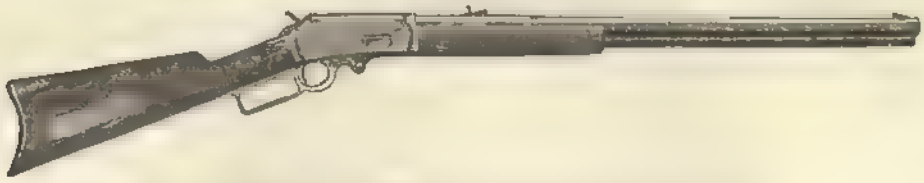
No. 7320F—303 caliber, center fire, 20 in. round barrel, shot gun butt, 6 shots w't 6 lbs .....each $26 00
No. 7520F—30-30 caliber, center fire, 20 in. round barrel, shot gun butt, 6 shots, w't 6 lbs.....each 26 00

A rifle that can be easily taken apart offers many advantages to the user, both for convenience in carrying and ease in cleaning.

TEN IN A CASE

MARLIN SAFETY REPEATING RIFLES.

MODEL 1893.



Model 1893 Rifle with "Smokeless Steel" Barrels. Special Features.

The special smokeless steel used in the manufacture of the barrel, receiver and breech bolt is guaranteed to be made according to the regulation specifications of the United States government for the .30 caliber rifle, with a limit of 70,000 lbs. tensile strength, 45,000 lbs. to 50,000 lbs. to the square inch. The Marlin Co. is the only one making the 32-40 and .38-55 rifles of special smokeless steel, making these calibers just as strong and durable as the 30-30.

These Model 1893 rifles are quick handling, powerful, accurate guns, built in perfect proportion throughout, with the simplest and strongest mechanism used in any high power repeater. They are made especially to stand the continued use of high power smokeless loads with jacketed bullets, and are ideal guns for shooting bear, moose, deer and all American big game.

Before

After

Case-Hardened Frame, Breech Bolt and Finger Lever, Black Walnut Stock, Blued Rifle Butt Plate, Rocky Mountain Front and Rear Sights.

No. 2636	—25-36 caliber, 26 in. octagon taper barrel, 10 shots, w't 8 lbs.	each $17 00
No. 5398	—32-40 caliber, 26 in. nickel steel round taper barrel, 10 shots, w't 8 lbs.	" 16 50
No. 6406	—30-30 caliber, 26 in. nickel steel octagon taper barrel, 10 shots, w't 7¼ lbs., rifle butt	" 17 00
No. 6408	—30-30 caliber, 28 in. nickel steel octagon taper barrel, 10 shots, w't 8 lbs.	" 18 50
No. 6406½	—30-30 caliber, 26 in. nickel steel half octagon taper barrel, half magazine, 5 shots, w't 7¾ lbs.	" 17 00
No. 3826	—38-55 caliber, 26 in. octagon taper barrel, 10 shots, w't 7¾ lbs.	" 17 00

"TAKE DOWN," MODELS 1893, 1894.

Cut showing section of Receiver when Rifle is taken apart.

Cut showing Rifle when taken apart.

Cut showing section of Barrel and Magazine when Rifle is taken apart.

To Take Rifle Apart.—Draw out the magazine. Throw forward the lever to remove the breech bolt from the barrel. Loosen cam and unscrew.

To Put the Rifle Together.—See that the magazine is drawn out and the lever thrown down. Screw barrel into receiver. Tighten cam. Push down magazine.

Model 1893, Special Light Weight, Case Hardened Frame, Breech Bolt and Finger Lever, Black Walnut Blued Rifle Butt Plate, Rocky Mountain Front and Rear Sights.

No. 6406 TD	—30-30 caliber, 26 in. octagon barrel, 10 shots, w't 8½ lbs.	each $21.00
No. 6406½ TD	—32-40 caliber, 26 in. half octagon barrel, half magazine, 5 shots, w't 7¾ lbs.	" 21 00
No. 6486 TD	—30-30 caliber, 26 in. octagon barrel, shot gun butt, pistol grip, 10 shots, w't 7½ lbs.	" 25 00
No. 3226 TD	—32-40 caliber, 30 in. octagon barrel, 10 shots, w't 7⅝ lbs.	" 21 00

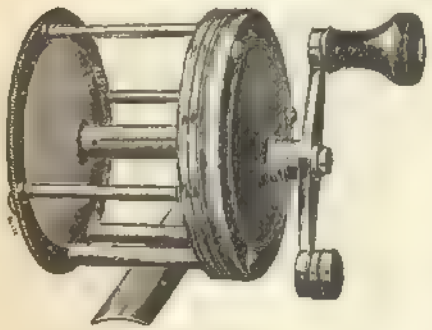
Model 1894, Special Light Weight, Case-Hardened Frame, Breech Bolt and Finger Lever, Black Walnut Blued Rifle Butt Plate, Rocky Mountain Front and Rear Sights.

No. 2624TD	—25-20 caliber, 24 in. octagon barrel, 14 shots, w't 7½ lbs.	each $18.40
No. 2626TD	—25-20 caliber, 26 in. octagon barrel, 15 shots, w't 7⅝ lbs.	" 20.00

TEN IN A CASE

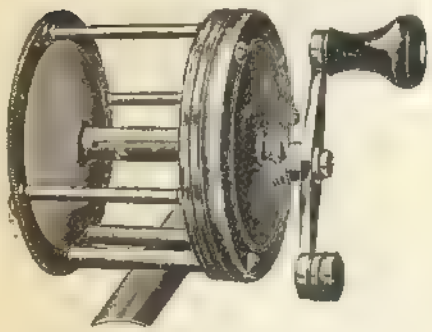
FISHING REELS.

"REV-O-NOC" SALT WATER.



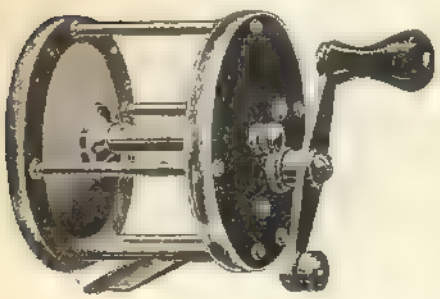
No. T150 REVONOC—Surf-casting or trolling, 150 yds., 2¼ in. spool, double multiplying, nickel plated, adjustable back-sliding click, covered pinion, w't 13 oz. . . . . per dozen $34 00

ONE IN A BOX.



No. T200 REVONOC Surf-casting or trolling, 200 yds., extra strong, 2¾ in spool quadruple multiplying, nickel plated steel pivots, steel axle, covered pinion, adjustable back-sliding click, balanced ebonized wood handle w't 17 oz. . . . . per dozen $45 60

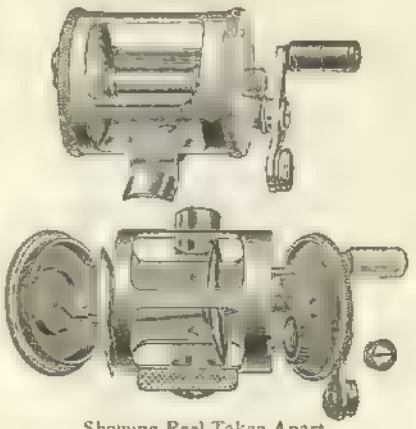
ONE IN A BOX



No. 6100 REVONOC—Rubber surf-casting, 200 yds., 2½ in. spool, reverse metal bound, nickel plated metal parts, quadruple multiplying, adjustable back-sliding click and drag, bridged front plate, coffee grinder handle, Kentucky pattern cross plate, steel cog post, click spring, tongue and ratchet, w't 16 oz. . . . . per dozen $48.00

ONE IN A BOX

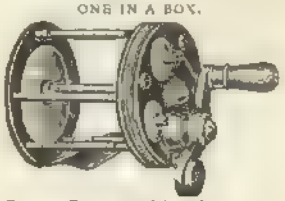
MEEK'S.



Showing Reel Taken Apart

No. 34—Blue Grass Simplex, 100 yds., spool 1⅝ in., quadruple multiplying, new design with thumb rest, easily taken apart by unscrewing cap on back end and thumb nut on front end, cannot be put together wrong, frame of one piece seamless tubing, threaded on the interior, gear is hardened Stubbs' steel ground and polished, pinion of hardened steel, pivot and pinion one solid piece, back sliding click of oil tempered steel, brass and German silver, all brass parts finely nickel plated, w't 7 oz. per dozen $135.00

ONE IN A BOX.



No. 3—Blue Grass, 100 yds., spool 1⅝ in., quadruple multiplying, special hand cut gears, tempered tool steel pivots and studs, balanced ivory handle, front sliding click and drag, screw off oil caps, German silver, perfect workmanship and adjustment, w't 8 oz. . per dozen $270 00

No. J3—Blue Grass, 100 yds., spool 1⅝ in., jeweled bearings, w't 8 oz., otherwise same as No. 3 per dozen 360.00

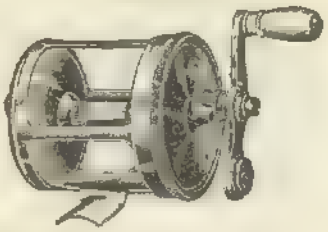
ONE IN A BOX

No. M3—100 yds., spool 1½ in., Kentucky pattern spiral gear giving strength, power and smoothness, pinion is hand cut from genuine Stubbs' steel drill rod, gear cut from solid hard drawn brass rod, and teeth of both pinion and gear are round at bottom, pinions running entirely through spool arbor, making pivots and pinions in one solid piece, very rigid, bearings anti-friction metal, frame entirely of German silver, balanced ivory handle, quadruple multiplying, front sliding click and drag, handle always on top unless made to order, w't 7½ oz per dozen $504 00

No. MJ3—100 yds., spool 1½ in., jeweled bearings, w't 7½ oz., otherwise same as No. M3 . . . . per dozen 612.00

ONE IN A BOX

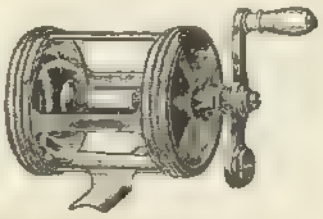
SPECIAL.



No. 3580—Tri-part, 80 yds., spool 1⅝ in., quadruple multiplying, reel frame and reel seat are drawn from one piece of plate brass, no solder joints or rivets, German silver spool, bearings are steel and bronze, ground to a perfect fit, highly polished, noiseless, w't 6½ oz. . . . . per dozen $57.60

No. 3680—Free-spool Tri-part, otherwise same as No. 3580 . . per dozen 107 20

ONE IN A BOX.



No. 3780—Take-a-part, 80 yds., spool 1 ⅝ in., quadruple multiplying, tubular frame, made of solid piece of tubing, with flat cross bars, no screws or rivets to work loose, steel pivots and gears, solid steel shaft, head and end plates adjustable, so that handle and click can be placed in any position, rear sliding click, highly nickel finish with German silver spool, w't 7¾ oz. . . . . per dozen $89 50

No. 3980—Free-spool Take-a-part, otherwise same as No. 3780, per dozen 120 00

FEATHER LIGHT.

No 3240.

No. 3280.

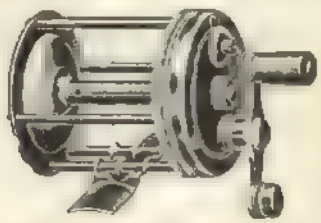
No. 3240—Featherlight, 60 yds., spool 2¼x¾ in., frame and reel seat of one piece, no screws to jar loose, removable spool, back sliding double pointed click and steel spindle, nickel plated, lightest reel made, very strong, w't 3 oz. . . . per dozen $19 80

No. 3280—Featherlight, 80 yds., spool 2¼x1 in., very light, removable open spool, back sliding steel click and steel spindle, open rear allowing line to dry on reel, nickel plated, w't 4½ oz. . . . . per dozen 28.80

ONE IN A BOX

"REV-O-NOC" FISHING REELS.

REV-O-NOC "LONG SPOOL."



Nickel Plated, Quadruple Multiplying.

No. 8260 REV-O-NOC—60 yds., 1⅞ in. spool, balanced white handle, brass pivots, patent adjustable front sliding drag and back sliding click, w't 7 oz., per dozen . $27 00

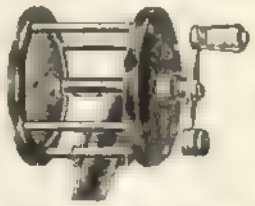
No. 8280 REV-O-NOC 80 yds., 1⅞ in. spool, w't 8 oz., otherwise the same as No. 8260 REV-O-NOC.....per dozen 29 00

No. J8260 REV-O-NOC—60 yds., 1⅞ in. spool, jeweled, w't 7 oz., otherwise the same as No. 8260 REV-O-NOC per dozen 48.00

No. J8280 REV-O-NOC—80 yds., 1⅞ in. spool, jeweled, w't 8 oz., otherwise the same as No. 8260 REV-O-NOC .per dozen 54 00

ONE IN A BOX

REV-O-NOC "DELAVAN."



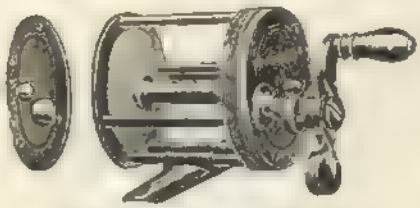
Nickel Plated, Quadruple Multiplying.

No. 1760 REV-O-NOC—60 yds., 1⅝ in. spool, hard rubber plates, balanced handle, with patent adjustable back sliding click and drag (steel springs and ratchet) with oil cup, w't 5½ oz., per dozen..... $28.50

No. 1780 REV-O-NOC—80 yds., 1¾ in. spool, w't 5¾ oz., otherwise the same as No. 1760 REV-O-NOC per dozen 31.40

ONE IN A BOX

REV-O-NOC "ST. CROIX."



Nickel Plated, Quadruple Multiplying.

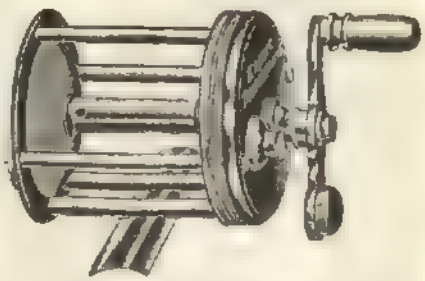
No. 2160 REV-O-NOC—60 yds., 1½ in. spool, bass casting, wide spool, Kentucky pattern, white balanced handle, back sliding adjustable drag, steel pivots oil cups on front and back plates, w't 7 oz.....per dozen $46 40

No. J2160 REV-O-NOC—*Jewe'ed*, otherwise same as No. 2160 REV-O-NOC 63 60

No. 2180 REV-O-NOC—80 yds., 1⅝ in. spool, w't 8 oz., otherwise same as No. 2160 REV-O-NOC.....per dozen 50 40

ONE IN A BOX

REV-O-NOC "PROFESSIONAL."



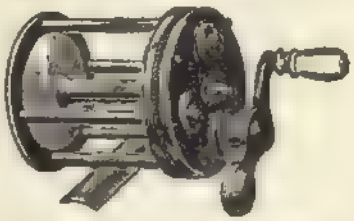
Nickel Plated, Quadruple Multiplying.

No. 6160 REV-O-NOC—Casting, 60 yds., satin finish, long spool 1⅝ in., steel pivots, steel axle, pinion cover, steel pinion, adjustable click and drag, balanced fancy white handle, w't 8 oz., per dozen..... $44 20

No. J6160 REV-O-NOC—Jeweled, otherwise the same as No. 6160 REV-O-NOC, per dozen..... 57 80

ONE IN A BOX

REV-O-NOC "NAPOLEON."



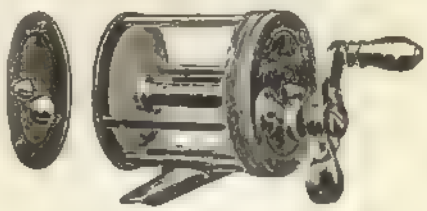
Nickel Plated, Quadruple Multiplying.

No. J5160 REV-O-NOC—60 yds., 1⅞ in. spool, round wide patterns, front sliding click and drag, steel pinion, pivots and cog post, Kentucky pattern cross plates, fancy balanced crank handle with white grip, jewels in oil cups, w't 8 oz.....per dozen $65 60

No. J5180 REV-O-NOC—80 yds., 2 in. spool, w't 9 oz otherwise the same as No. 5160 REV-O-NOC .....per dozen 74.00

ONE IN A BOX.

REV-O-NOC "TOURNAMENT."



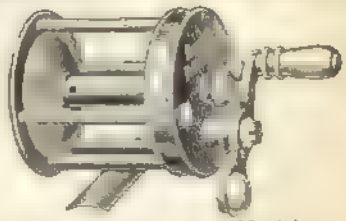
Solid German Silver, Quadruple Multiplying.

No. 9160 REV-O-NOC—Kentucky pattern, 60 to 80 yds., wide pattern, 1⅝ in. spool, pinion and pivots one-piece Stubb's steel, hardened and ground, phosphor bronze bushing, fancy oil cups, white handle, fancy balanced crank, hand polished front sliding drag, back sliding click, w't 8 oz. per dozen $120.00

No. J9160 REV-O-NOC Jeweled bearings otherwise the same as No. 9160 REV-O-NOC, per dozen..... 144 00

ONE IN A BOX

REV-O-NOC "TAKE-DOWN."



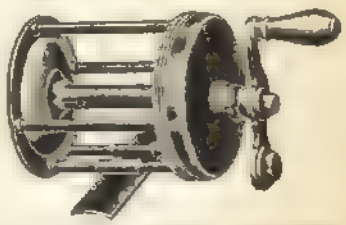
Nickel Plated, Quadruple Multiplying.

No. 2560 REV-O-NOC—60 yds., 1⅝ in. spool, back sliding adjustable click, front hiding steel pivots, pinions and click ratchets, balanced handle, w't 7 oz. per dozen $48.00

No. 2580 REV-O-NOC 80 yds., 1⅝ in. spool, w't 8 oz., otherwise the same as No. 2560 REV-O-NOC .....per dozen 50.40

ONE IN A BOX

REV-O-NOC "SPECIAL."

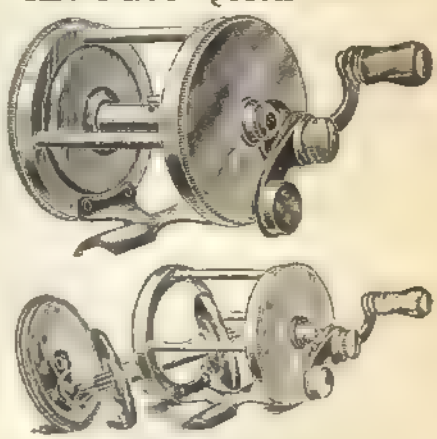


Nickel Plated, Quadruple Multiplying.

No. J6480 REV-O-NOC—80 yds., 1⅞ in. spool, *take-apart*, with extra quality extension steel pivots in bushel bearings, jewels in oil cups, patent adjustable back sliding click, ivory tusk balanced handle, w't 7 oz., per dozen..... $72.00

ONE IN A BOX.

REV-O-NOC "QUICK-APART."



Showing Reel Taken Apart.

German Silver, Quadruple Multiplying.

No. J7160 REV-O-NOC—60 yds., 1⅝ in. spool, jeweled, steel pivots, balanced bone handle, w't 7 oz..... per dozen $80 00

No. J7180 REV-O-NOC—80 yds., 1⅞ in. spool, w't 8 oz., otherwise the same as No. J7160 REV-O-NOC.....per dozen 86 00

These reels have patent internal click. This click is connected by turning left disk half inch to the right. The reels are very handsomely finished and are made so that there is not a screw visible anywhere.

ONE IN A BOX.

We invite particular attention to our assortment of "Take-apart" reels. These reels are made so that the fisherman can take apart, oil, clean and assemble without the use of any tool.

MINNOWS AND BAITS.

PHANTOM MINNOWS.

Highly Polished Metal Head, all Silk Body Covered With Waterproof Varnish, Mounted on Brass Box Swivel and Spring Steel Treble Hooks.

Nos.	02	03	04	05	06	07	08
Length	2½	3	3¼	3½	4	4¼	4½ in.
Weight	½	¾	1	1	1	1½	1½ oz.
Per dozen	$4.40	4.80	4.80	4.80	5.90	6.60	7.20

ONE ON A CARD IN A BOX; SIX IN A CARTON.

PHANTOM MINNOWS WITH SPINNERS.

Mounted with Bright Treble Hooks to Heavy Cable Twist Gut Traces, with a Waterproof Binding, Weight About 1 Ounce, Brass Box Swivel.

No. 9—Single propeller, 2¾ in. phantom minnow.....per dozen $ 9.60
No. 10—Double propller, 2¾ in. phantom minnow..... " 11.30

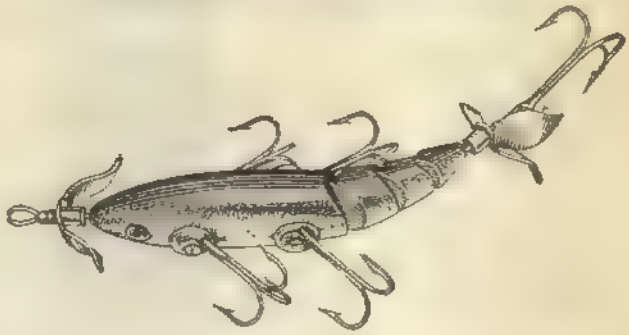
ONE ON A CARD IN A BOX; SIX IN A CARTON.

WEEDLESS MINNOWS.

No. 0—Underwater, 5⅛x1¼ in., green back and white belly, 2 hollow point treble hooks, with weed guards, 2 spinners, w't 1 oz., per dozen..... $12.80

ONE IN A BOX; ONE DOZEN IN A CARTON.

MICHIGAN LIFE-LIKE MINNOWS.



Weight About 1 Ounce

No. 1—5¼ in., light green, speckled back, white belly, 5 treble hooks	per dozen	$16 00
No. 7—5¼ in., brook trout, 5 treble hooks	"	16.00
No. 9—5¼ in., dark back, yellow belly, 5 treble hooks.	"	16 00
No. 14—5¼ in., perch, 5 treble hooks	"	16.00
No. 4—4¼ in., light green, speckled back, white belly, 3 treble hooks	per dozen	12 80
No. 8—4¼ in., brook trout, 3 treble hooks	"	12.80
No. 10—4¼ in., dark back, yellow belly, 3 treble hooks.	"	12 80
No. 15—4¼ in., perch, 3 treble hooks	"	12.80

Has jointed tail portion, which is flexible, and when being drawn through the water the three-blade propeller wiggles the jointed tail portion, and makes an excellent imitation of a live minnow while swimming

Hooks are very easily detachable, and cannot possibly tangle or interlock, as they cannot swing forward. They can be replaced by any common treble hook of any size or shape

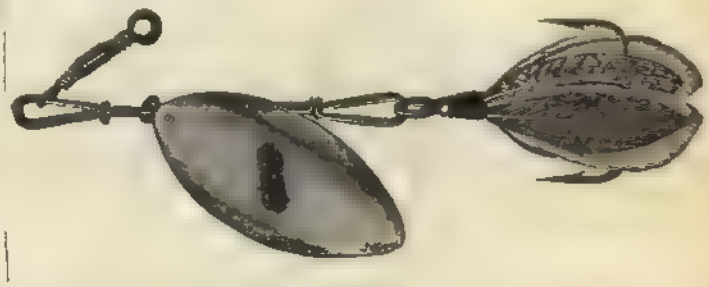
The bait is finished with a special water-proof finish, which prevents it from soaking water or peeling off.

ONE IN A BOX; ONE DOZEN IN A CARTON.

SPECIAL MUSCALLONGE BAITS.

No. M7 SPOON—2¾ in. nickeled spoon, No 1/0 treble hooks, patent reversible hinge lug.....per dozen $4 00
No. M8 SPOON—3¼ in. nickeled spoon, No 7/0 treble hooks, patent reversible lug.....per dozen 4 00

ONE DOZEN IN A BOX



No. 109—SKINNER'S, 3 in. nickeled spoon, No. 7/0 treble hooks, No 1/0 swivel, finely feathered.....per dozen $6.00
No. 112—SKINNER'S, 3¼ in. nickeled spoon, No. 8/0 treble hooks, No. 1/0 double swivel, finely feathered.....per dozen 10 00

ONE DOZEN IN A BOX.

PRESERVED AND ARTIFICIAL BAITS.

PRESERVED BAITS.

Minnows.

Frogs

Minnows.

No. 1935—Sizes	Small	Medium	Large
No. in bottles	5 to 7	1¾ to 2¼	1½ to 2 doz.
Per dozen	$4 00	4 00	4 00

The composition used in preserving the minnows does not affect shape or shininess, will not toughen or harden the bait, and gives all the appearances of a live shiner

SMALL AND MEDIUM, TWO DOZEN; LARGE, ONE DOZEN IN A CASE.

Frogs.

No. 1936—One dozen in a screw top glass jar.....per dozen $4 00

These frogs are so treated that they preserve their color and, while not rubbery, are slightly elastic and toughened so that they last on the hook better than the live ones.

ONE DOZEN IN A CASE.

PORK RIND.

No. 1937—Prepared in correct shape for casting, 9 or 10 strips in metal boxes .....per dozen boxes $3.80

Strips are 3 to 4 inches long and so shaped that the action in the water is like a live minnow. Can be conveniently carried in the vest pocket

ARTIFICIAL FROGS.

No. 30.

No. 3-0.

No. 20.

No. 30 RUBBER—Solid rubber with two common hooks, non-floating, length 3 in.....per dozen $4.00

ONE ON A PERFORATED CARD.

No. 3-0 RUBBER—Hollow rubber, with weedless hooks, length 3½ in., per dozen 9.60

No. 20 RUBBER—Moulded ground cork and pure, soft rubber, decorated true to life, hollow point hooks, floats belly down, per dozen... 5 50

ONE IN A BOX; HALF DOZEN IN A CARTON

WHITE GRUB BAITS.

Pure India Rubber, Very Life-Like.

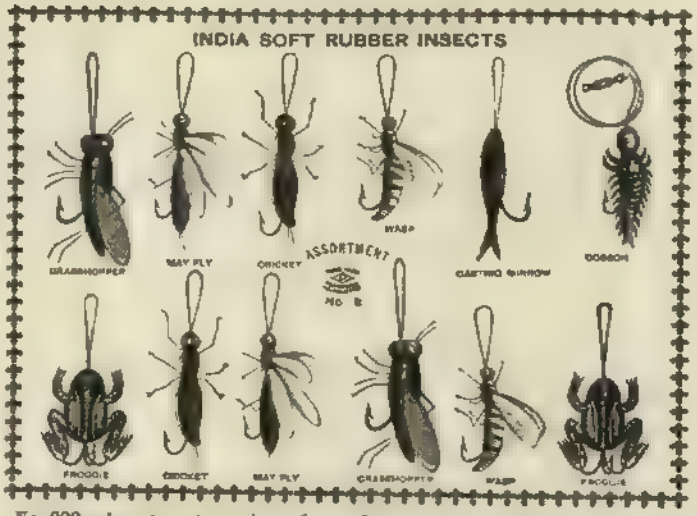
No. 18—Trout, on hollow point hook, per dozen..... $1.60

No. 20—Bass, on hollow point hook, per dozen..... 1.90

A very close imitation of a live grub and equally effective.

ONE DOZEN ON BICYCLE BOARD, IN A FANCY BOX

RUBBER BAITS.



No. 200—Assortment consists of one dozen of the most popular baits on card in fancy box.....per dozen assortments $30.00

No. 14.

Pure India Rubber, Very Life-Like.

No. 14—Worm	per dozen	$3 40
No. 99—Cricket	"	2 00
No. 13—Minnow, 1¼ in. long	"	3.00
No. 15—Minnow, 2 in. long	"	4.50
No. 11—Froggie	"	3 00
No. 31—Grasshopper	"	2.00

For illustration of these baits see cuts of No 200 assortment

ONE DOZEN ON A PERFORATED CARD.

No 12.

Pure India Rubber, Very Life-Like.

No. 12—Large frog, per dozen $4 20

No. 21—Large Dobson, per doz 3 80

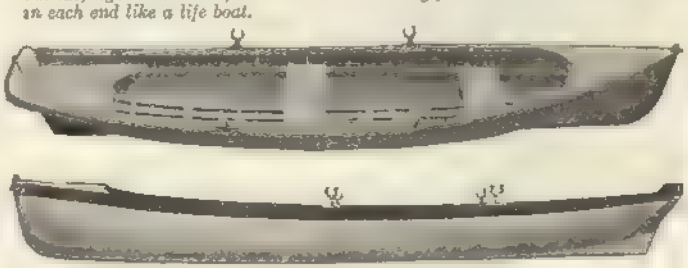
No 21.

ONE DOZEN IN A BOX ON A CARD.

MULLIN'S STEEL BOATS.

No. 312—"SPECIAL LIVERY", length 12 ft., beam 44 in., height at bow 22 in., stern 21½ in., amidship 13½ in., w't about 150 lbs., crated 175 lbs., with one pair 7½-foot straight leathered ash oars.★ each..... $57 60

Designed especially for boat liveries. It is arranged for but two passengers, and consequently the liveryman will usually let out two or more boats to the same party, greatly increasing his revenue, when otherwise the entire party would go out in a large boat, to the loss of the liveryman. It is light and easily rowed, and will be found a constant source of revenue. It will safely stand the hard wear and tear to which all livery boats are subjected. It is modeled on perfect lines, handsome in appearance, painted aluminum outside, light blue inside, natural wood trimmings, air chambers under decks in each end like a life boat.



No. 314—"PRINCE," length 14 ft., beam 44 in., height bow 22 in., stern 21½ in., amidship 13½ in., w't about 180 lbs., crated 200 lbs., with one pair 7½-foot straight leathered ash oars ★each $61 20

This boat is one of the best family and pleasure resort boats that has ever been designed. It is modeled on perfect lines, insuring ease of rowing. It is also a first-class fishing boat, and after a vacation spent in one of these perfect steel boats, you will never be satisfied with any other. It is handsomely finished, painted aluminum outside, light blue inside, natural wood trimmings. Large air chambers under decks in each end like a life boat.

No. 316—"SULTAN," length 16 ft., beam 50 in., height bow 25 in., stern 24½ in., amidship 15 in., w't about 225 lbs., crated 260 lbs., with one pair 7½-foot straight leathered ash oars ★ .. each $70 20

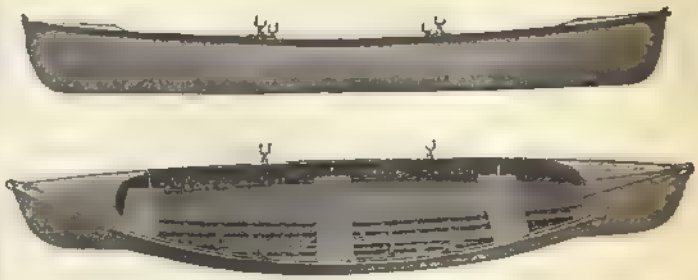
Is modeled on perfect lines, and will make an admirable boat for family or livery use where a good capacity is required, the best boat for children, as it is roomy and very steady. Easy to row. It will appeal to summer resorters on account of its durability, comfort and safety.

Finished in aluminum outside, light blue inside, natural wood trimmings, large air chambers under decks like a life boat.

EXTRAS.

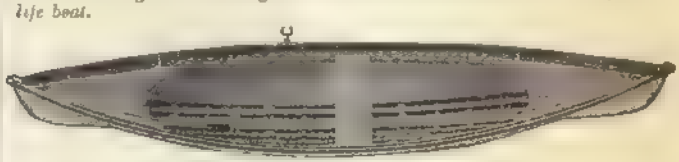
For Nos. 312, 314, 316, 315 and 305.

Straight Ash Oars, 7½ ft.	per pair	$3 60
Spruce Spoon Oars, 7½ ft	"	7 20
Rudder	each	2 70
Cushions for 12-ft Special Livery Boat	"	10 35
Cushions for 14-ft. Prince Boat	"	13 05
Cushions for 16-ft. Sultan Boat	"	17 55
Cushions for 15-ft. Queen Boat	"	9.45
Cushions for 15-ft. Buckeye Boat	"	15.30
Back Rests	"	1.80
Oarlocks (horns only)	per pair	.45
Mast and Leg o' Mutton Sail	each	10.80
Mast Step	"	2 70
Painting Names	"	1 80



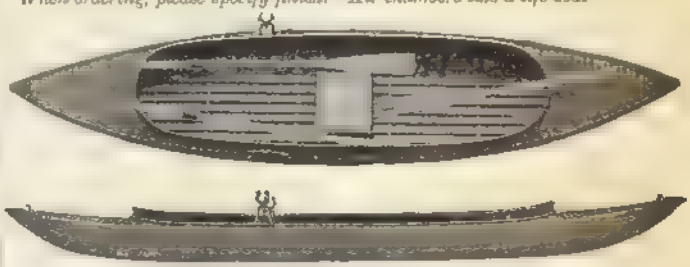
No. 315—"QUEEN," length 15 ft., beam 44 in., height bow and stern 22 in., amidship 13½ in., w't about 185 lbs., crated 200 lbs., with one pair 7½-ft. straight leathered ash oars★.....each $63 00

A double end boat that is a magnificent model for pleasure purposes and is especially desirable where you wish to paddle as well as row. It is light, easy running and thoroughly comfortable and the most beautiful boat on the water. Finished in aluminum outside, light blue inside, with natural wood trimmings. It has large air chambers under decks in each end, like a life boat.



No. 305—"BUCKEYE," length 15 ft., beam 44 in., height at bow and stern 14 in., amidship 12 in., w't 160 lbs., crated 180 lbs., with one pair 7½-ft. straight ash oars★.....each $59.40

Is the best combination hunting and fishing boat made. It has a perfectly smooth molded bottom, is fitted with a keel. Can be propelled with greater ease than any flat bottom boat, built exclusively for marsh shooting. Is steady to shoot or cast from. Free from all defects of the wooden hunting boats. Finished in aluminum outside, light blue inside or in dead-grass paint. When ordering, please specify finish. Air chambers like a life boat



No. 20—"GET THERE" length 14 ft., beam 36 in., 12½ in. high to top of coaming at ends, 10 in. high amidship, cockpit 9 ft. long, 30 in. wide, w't about 100 lbs. including regular fittings packed for shipment 120 lbs..... each $30 60

No. 27—"BUSTLE," with air chambers on sides, making beam 46 in., otherwise same as No. 20, w't 120 lbs., packed for shipment 140 lbs..... each 32.20

Is recognized wherever it is used as the standard sportsman's boat. Thousands of them are in use and are pronounced by all who have ever had experience with them as the lightest, most comfortable and safest duck boats built. They are painted a dead-grass color, and you are assured of a neat and tasty craft. Air chambers at both ends like a life boat. The outfit complete consists of a bottom board, movable seat, oars and oarlocks and one long or short paddle. No. 20 and 27 boats in stock in Chicago.

EXTRAS.

For Nos. 20 and 27.

Standards for Canvas Gunwale	per set	$2.70
Folding Center Board	each	14 40
Rudder	"	3.60
Canvas Gunwale	"	4.50
Extra Paddle	"	1.26
Ash Oars, extra pair, 6 ft	per pair	3.15
Extra Seat	each	1.53
Keeper on Stern, for sculling	"	.90
Mast and Leg o'Mutton Sail	"	9.00
Allen's Bow Facing Oars (omitting regular oars)	"	14.40
Allen's Bow Facing Oars (including regular oars)	"	17.49
Game Baskets	per pair	10.80
Extra pair Oarlocks (horns only)	"	.45

Send for Mullin's Special Boat and Launch Catalogue

★FOR FACTORY SHIPMENT ONLY

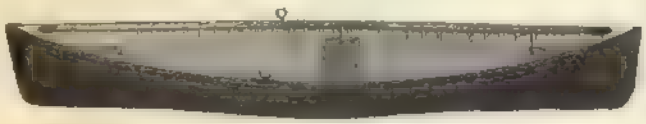
"REV-O-NOC" WOODEN ROW BOATS.*

Specifications Applying to "Special and Family Row Boats."

Grade "B"—The entire frame is constructed of the best quality of oak. The planking is of northern white cedar fastened with copper nails properly clinched in a workmanlike manner. All other fastenings are screws. All fittings are nickel plated, steel stem band, painter ring and line. One pair ash oars leathered and varnished. The three top strakes inside and outside, gunwales, deck and seats are finished in oil and the best grade of marine varnish. Balance of boat is painted three coats best lead paint.

Grade "C"—Same specifications as Grade "B," except all fastenings are iron, all fittings galvanized. Painted inside and outside with three coats best lead paint, the gunwales, breast hooks and seats being finished in the natural wood with best grade of marine varnish, making a very neat contrast.

Exterior lines of either 13 or 15-ft. specials.



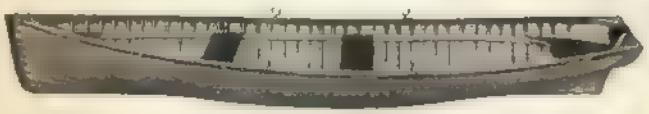
Seating arrangement of 13-ft special

Seating arrangement of 15-ft. special.

Special, Double Ender.

Nos.	LENGTH.	BEAM.	DEPTH AMIDSHIP.	DEPTH FORE AND AFT.	SHIPPING WEIGHT.	EACH.
B413	13 ft.	42 in.	13 in.	20 in.	115 lbs.	$54 00
C413	13 ft.	42 in.	13 in.	20 in.	115 lbs.	49 60
B415	15 ft.	42 in.	14 in.	21 in.	125 lbs.	56.53
C415	15 ft.	42 in.	14 in.	21 in.	125 lbs.	54.00

Exterior lines of Family



Seating arrangement of Family.

Family.

Nos.	LENGTH.	BEAM.	DEPTH FORWARD	DEPTH AMIDSHIP.	DEPTH AFT.	SHIPPING WEIGHT.	EACH.
B424	14 ft.	46 in.	24 in.	15 in.	20 in.	135 lbs.	$63.00
C424	14 ft.	46 in.	24 in.	15 in.	20 in.	135 lbs.	56 53
B425	15 ft.	46 in.	24 in.	15 in.	20 in.	160 lbs.	69 47
C425	15 ft.	46 in.	24 in.	15 in.	20 in.	160 lbs.	63 00
B426	16 ft.	48 in.	25 in.	16 in.	21 in.	175 lbs.	72 00
C426	16 ft.	48 in.	25 in.	16 in.	21 in.	175 lbs.	66.67

These Special and Family Boats are the best boats on the market for the money. They differ from the Standards in construction only, and we recommend them to all looking for a safe, light, easy rowing, serviceable and low priced boat.

Specifications.

Grade "B"—Keel, stem and stern post, best quality white oak, steam bent, oak gunwales and deck with coaming, half round oak fenders, planking clear white cedar, fastenings copper clout nails and brass screws, fittings, nickel plated oar locks and sockets, seat hangers, stem band and painter ring, with line, two pair straight spruce oars leathered, varnished and copper tipped, with all sizes except 13 ft. The gunwales, seats, deck and three top strakes finished in oil and the best marine varnish, balance of boat painted three coats best lead paint, rudder and lazy back with each boat.

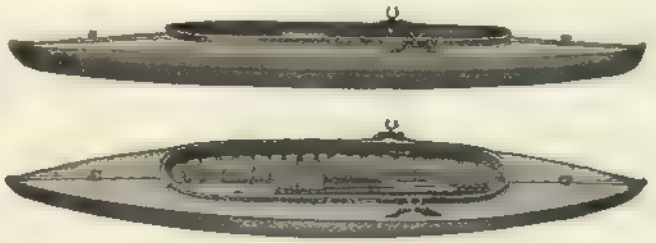
Grade "C"—Same specifications as Grade "B," except all fastenings are iron and boat is painted inside and out three coats best lead paint, white outside and drab inside, gunwales, decks and seats finished in oil, and best marine varnish. One pair straight spruce oars, leathered, varnished and copper tipped with all size boats.

Exterior line of Standard.

Seating arrangement of Standard.

Standard, Square Stern.

Nos.	LENGTH.	BEAM.	DEPTH FORWARD.	DEPTH AMIDSHIP.	DEPTH AFT.	SHIPPING WEIGHT.	EACH.
B433	13 ft.	40 in.	22 in.	14 in.	19 in.	120 lbs.	$63 00
C433	13 ft.	40 in.	22 in.	14 in.	19 in.	120 lbs.	58 33
B434	14 ft.	42 in.	23 in.	14½ in.	20 in.	130 lbs.	72 00
C434	14 ft.	42 in.	23 in.	14½ in.	20 in.	130 lbs.	67 47
B435	15 ft.	42 in.	24 in.	15 in.	20½ in.	165 lbs.	85 00
C435	15 ft.	42 in.	24 in.	15 in.	20½ in.	165 lbs.	81 00
B436	16 ft.	46 in.	25 in.	16 in.	21 in.	180 lbs.	94 53
C436	16 ft.	46 in.	25 in.	16 in.	21 in.	180 lbs.	90 00
B438	18 ft.	47 in.	25 in.	16 in.	21 in.	220 lbs.	112.53
C438	18 ft.	47 in.	25 in.	16 in.	21 in.	220 lbs.	103.47



Still Hunter.

Nos.	LENGTH.	BEAM.	DEPTH.	COCKPIT.	DRAUGHT.	SHIPPING WEIGHT.	EACH.
442	12 ft.	36 in.	8½ in.	6½ ft.×26 in.	3 in.	80 lbs.	$40.53
444	14 ft.	40 in.	11 in.	8½ ft.×30 in.	4 in.	100 lbs.	45.00
Seats						extra, each	2 00
Air Tanks						" "	4.53
Bow Facing Oar Locks						" "	10 80

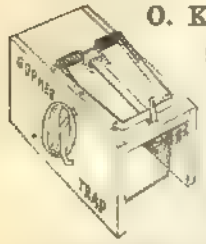
This boat was designed to meet the demand for an exceedingly low priced, but a strong, safe and durable boat. The body is of cedar and oak, all ribs, braces and trimmings of hardwood. The whole painted three coats, dry grass color. Is supplied with a movable seat, one pair six-foot oars and one eight-foot push paddle, and removable floor rack. A galvanized steel tube passes through forward and after decks, affording a very convenient and safe way to anchor. This boat is built so that galvanized steel air tanks can be put under both forward and after decks. When supplied with these tanks we guarantee that this boat will sustain 500 lbs. weight when filled with water, making the same practically non-sinkable.

Send for special "Rev-o-noc" boat catalogue.

★FOR FACTORY SHIPMENT ONLY.

TRAPS.

O. K. GOPHER.



No. 61—6¾×4×3 in. hardwood box, stained red, flat galvanized trigger, round coppered iron striking bar, two strong springs, w't per doz 8½ lbs., per dozen $3 60

The most perfect and practical gopher trap on the market. Very easy to manipulate and very sensitive.

ONE GROSS IN A CRATE

NEWHOUSE GOPHER.

No. 84—All steel, length 5 in., 2¾ in. opening, w't per doz. 2¾ lbs., per dozen $2 50

This trap is well and carefully made and sustains the enviable reputation of the manufacturer. It is simple, practical, and easy to set

ONE DOZEN IN A BOX.

REDDICK'S MOLE.

No. 16—Steel frame, six sharp steel tines, very strong, heavily tinned to prevent rust, japanned steel spring, w't per doz. 38 lbs per dozen..... $12 00

This is a sure, sensitive and effective trap.

HALF DOZEN IN A CRATE.

JUMP.

Single Spring.

Double Spring

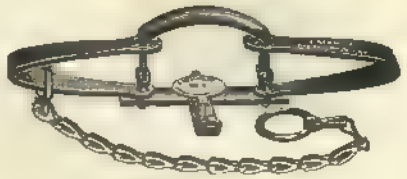
All Steel, with Chain.

No. 0 —Rat or gopher, single spring, w't per doz 5 lbs .....per dozen $ 4.25
No. 1 —Musksrat, single spring, w't per doz 7 lbs..... per dozen 5 00
No. 1½—Mink, single spring, w't per doz 7 lbs..... ..per dozen 7 50
No. 2 —Coon, mink or skunk, double spring, w't per doz. 8½ lbs per dozen 10 50
No. 3 —Fox or otter, double spring, w't per doz. 17 lbs..... ..per dozen 14 00
No. 4 —Otter or wildcat, double spring, w't per doz. 20 lbs . . . . . per dozen 16 50

These traps are becoming very popular. They are lighter in weight and therefore easier to carry than other styles. They lie flat and are easily secreted in narrow runways. When sprung they jump high up on the animal's leg, thereby insuring a firm grip. These traps are thoroughly tested under water and warranted in every respect.

STEEL.

Nos 0, 1 and 1½.



Nos 2, 3 and 4

No 21

Nos 5 and 6

STEEL GAME, WITH CHAIN.

No. 0 —3½ in., rat, single spring, w't per doz 5½ lbs..... per dozen $ 4 25
No. 1 —4 in., muskrat, single spring, w't per doz 7¾ lbs..... per dozen 5 00
No. 1½—4¾ in., mink, single spring, w't per doz 11¼ lbs..... per dozen 7 50
No. 2 —4¾ in., fox, double spring, w't per doz 14½ lbs..... per dozen 10 50
No. 3 —5½ in., otter, double spring, w't per doz 22 lbs..... per dozen 14 00
No. 4 —6½ in., beaver, double spring, w't per doz. 25 lbs..... per dozen 16 50

In this grade we carry both Victor and Hector brands. These are staples in every hardware store and are the most saleable traps on the market. Farmers and trappers of small game, who find that a cheap trap answers their purpose, are pleased with these traps in their present perfected form.

HAWLEY & NORTON, WITH CHAIN.

No. 0 —3½ in., rat, single spring, w't per doz 6 lbs..... per dozen $ 4 25
No. 1 —4 in., muskrat, single spring, w't per doz. 8½ lbs..... per dozen 5 00
No. 1½—4⅞ in., mink, single spring, w't per doz. 13 lbs..... per dozen 7 50
No. 2 —4⅞ in., fox, double spring, w't per doz. 14½ lbs..... per dozen 10 50
No. 3 —5½ in., otter, double spring, w't per doz. 20 lbs..... per dozen 14 00
No. 4 —6½ in., beaver, double spring, w't per doz. 29 lbs..... per dozen 16 50

The Hawley & Norton traps are almost identical in form with the Newhouse, but are somewhat lighter throughout and therefore cheaper. They are, however, good, reliable traps with quite a reputation of their own.

NEWHOUSE, WITH CHAIN.

No. 0 —3½ in., rat, single spring, w't per doz 7½ lbs..... per dozen $ 4 25
No. 1 —4 in., muskrat, single spring, w't per doz 10 lbs..... per dozen 5.00
No. 1½—4¾ in., mink, single spring, w't per doz 14 lbs..... per dozen 7.50
No. 2 —4¾ in., fox, double spring w't per doz 17½ lbs..... per dozen 10 50
No. 2½—4¾ in., otter, single spring with teeth, w't per doz. 23 lbs., per dozen..... 16.50
No. 3 —5½ in., otter, double spring w't per doz 28 lbs..... per dozen 14 00
No. 4 —6½ in., beaver, double spring w't per doz. 33 lbs..... per dozen 16 50
No. 5 —11¾ in., bear, double spring, w't per doz. 234 lbs., w't each spring 2 lbs. 10 oz..... per dozen 120 00
No. 6 —16 in., grizzly bear, double spring, w't per doz. 504 lbs., w't each spring 6 lbs. 10 oz..... per dozen 280 00

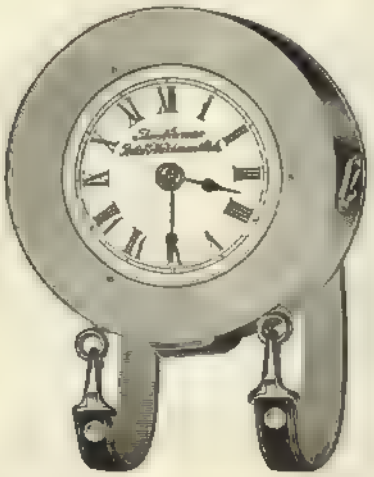
These are the best traps made. Nothing but best crucible steel used in the springs. Each trap is set and sprung to be sure it is working correctly. The stock is a mixture of special [illegible]. The standard is kept up by frequent repetition of tests and by daily watching results. The springs are tested in three different ways before leaving the factory. The other parts are carefully tested and inspected. Newhouse traps are absolutely guaranteed.

NEWHOUSE BEAR TRAP CLAMPS.

No. 5—For setting No. 5, w't per doz. 10½ lbs. ..... per dozen $ 6 00
No. 6—For setting No. 6, w't per doz. 14 lbs..... per dozen 10 00

NEWMAN WATCHMEN'S CLOCKS.

PORTABLE.



No. 9 - 9 keys, diameter 4 in., depth 2 in cast aluminum case, 4 in iron station box, jeweled movement, runs 55 hours, shipping weight 25 lbs., - each $110.00

No. 16—16 keys, diameter 4¾ in., otherwise same as No. 9, shipping weight 30 lbs., - - - - - - - - " 120.00

Portable watches have been made for many years but owing to the fact that watchmen could tamper with them by the use of one duplicating key for registering and by other means manufacturers and other users of watchmen's clocks, as well as insurance underwriters, have generally accepted them only as a makeshift.

In many institutions a portable watch is the only system of recorder that can be used, such, for instance, as lumber yards, railroad yards mines, factories that are not enclosed chemical and packing houses where the brine or chemicals destroy the efficacy of other systems, and for general outdoor watching

The following are the principal features of improvements:

To duplicate the key the factory dies and matrix must be used. Keys cannot be purchased without application by the proper authorities. Each key is fastened in an iron station box, which is sealed at the station with two seals to remove station the seals must be broken The case is made of aluminum for lightness and to prevent tarnishing or injury from acids and grease.

The dial is arranged for twenty four hours This gives a record for the Sunday day registering when necessary. (A 24 or 48 hour dial should be used on every other watchmen's clock that has a safety lock although they also use a 12 hour dial which the watchman can duplicate, mark it up and go to sleep The record made in locking and unlocking on a 24 hour dial denotes whether it has been locked or unlocked in the night or day.)

The mechanism that does the marking is on the key, which runs through all the house so made that the key fits exactly and has but one motion The house is separated from the movement and tightly closed so that no dirt or dust can affect the works.

The registering is made by embossing the numbers of the station into the dial whenever he turns the keys.

It has a capacity for sixteen stations in one line from center. More can be added if necessary.

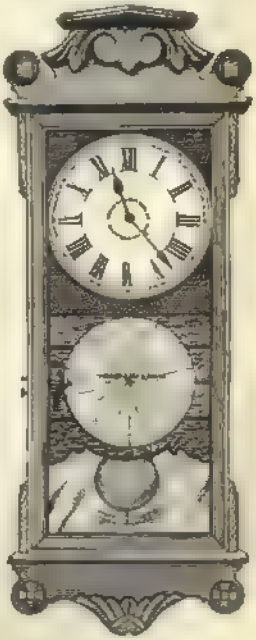
A timepiece dial shows the watchman the time to start on his rounds, and the time he should take in making such rounds, which prevents his rushing to the stations without seeing everything along his route.

Where it is desired or necessary to use a 12 hour watchmen's dial they will be furnished.

The movement is the finest quality and jeweled, and it is far enough away from the case to prevent its injury by sudden jarring.

The cases are aluminum castings and cannot be bent or broken. The watch weighs much less than the other watches on the market

The watches are warranted and sent out on approval.



Style A— 14×14 in. oak case, 8 day time, double case to exclude dust and moisture, 2 day watchman's dial, weight 19 lbs., - each $23 00

Style C—Regulator, 42¼×14¼ in. oak case, 12 in. dia., 8 day paper dial, remove once a week, purely mechanical, weight 30 lbs., · 33.00

With Side Attachment, for pulling from outside, - - - - - - - - - - - - - - extra 1.50

When ordering state if it is to be pulled from outside These stationary watchmen's clocks are the only kind that are absolutely tamper proof and also answer the purpose of a good timekeeper.

NEW HAVEN DROP OCTAGON AND REGULATOR CLOCKS.

BRANFORD, Height 22½ Inches, Width 15 Inches, 10 Inch Dial, Solid Oak Case.

No. 210—8 day timepiece.....	each	$6.10
No. 310—8 day strike.....	"	7.10
No. 410—Fitted with calendar, extra	"	.45

ONE IN A CASE. WEIGHT 19 LBS.

BRANFORD, Height 27⅛ Inches, Width 17⅛ Inches, 12 Inch Dial, Solid Oak Case.

No. 212—8 day timepiece.....	each	$6 40
No. 312—8 day strike.....	"	7 40
No. 412—Fitted with calendar, extra	"	.45

ONE IN A CASE. WEIGHT 26 LBS

DROP OCTAGON, Height 21⅝ Inches, Width 13⅜ Inches, 10 Inch Dial, Solid Oak Case.

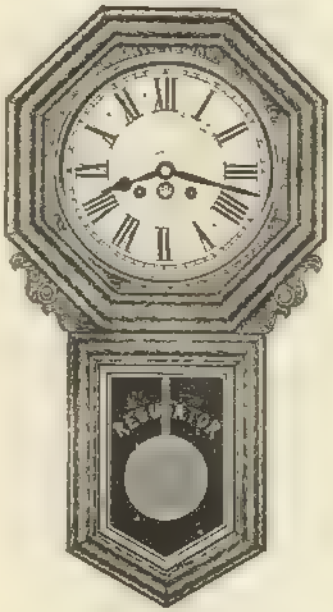
No. 510—8 day timepiece.....	each	$5.90
No. 610—8 day strike.....	"	6 90
No 710—Fitted with calendar, extra	"	.45

NE IN A CASE. WEIGHT 18 LBS.

DROP OCTAGON, Height 23⅞ Inches, Width 16⅛ Inches, 12 Inch Dial, Solid Oak Case.

No. 512—8 day timepiece.....	each	$6.55
No. 612—8 day strike.....	"	7.55
No. 712—Fitted with calendar, extra	"	.45

ONE IN A CASE. WEIGHT 21 LBS.



ERIE, Height 33⅛ Inches, Width 18⅛ Inches, 12 Inch Dial, Solid Oak Case, Antique Finish.

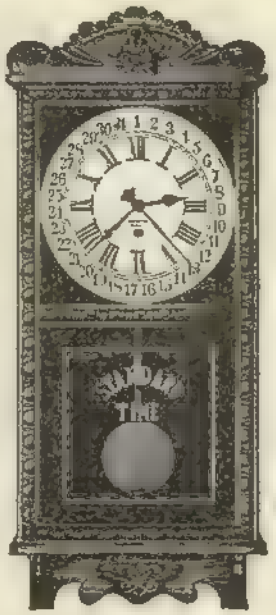
8 day timepiece.....	each	$7 25
8 day, strike, cathedral gong . .	"	8 75
Fitted with calendar, extra . .	"	.45

ONE IN A CASE WEIGHT 34 LBS.

REFEREE, Height 35½ Inches, Width 16 Inches, 12 Inch Dial, Solid Oak Case.

8 day timepiece.....	each	$7.40
8 day, strike, gong.....	"	8 90
Fitted with calendar, extra.....	"	.45

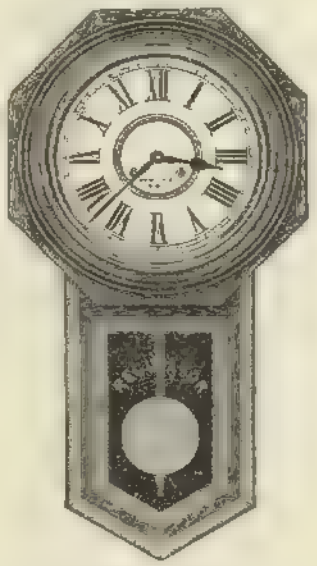
ONE IN A CASE. WEIGHT 49 LBS.



TAMPA, Height 37½ Inches, Width 15½ Inches, 12 Inch Dial, Solid Oak Case,

8 day timepiece.....	each	$7.40
8 day, strike, cathedral gong.....	"	8.90
Fitted with calendar, extra	"	.45

ONE IN A CASE WEIGHT 43 LBS.



HARVARD, Height 32¼ Inches, Width 17¼ Inches, 12 Inch Dial, Solid Oak or Walnut Case.

8 day timepiece.....	each	$10.20
8 day, strike, gong	"	11.70
Fitted with calendar, extra.....	"	.45

ONE IN A CASE. WEIGHT 33 LBS.

NEW HAVEN KITCHEN CLOCKS.

GYPSY LINE ASSORTMENT, Consisting of Six Clocks, Two Each of the Three Patterns Shown above, Dark Oak, Height 18¾ inches, Width 9¾ inches, Dial 6 inches.

8 day, half hour strike	per case of six	$20	00
8 day, half hour strike, alarm	" "	22	70
8 day, half hour strike, gong	" "	22	40
8 day, half hour strike, gong alarm	" "	25	10

SIX IN A CASE. WEIGHT 75 LBS.

CAMDEN LINE ASSORTMENT, Consisting of Six Clocks, Two Each of the Three Patterns Shown above, 4 Light Oak, 2 Dark Oak, Height 22 inches, Width 14 inches, 8 inch Dial.

8 day, half hour strike	per case of six	$20	00
8 day, half hour strike, alarm	" "	22	70
8 day, half hour strike, gong	" "	22	40
8 day, half hour strike, gong alarm	" "	25	10

SIX IN A CASE. WEIGHT 75 LBS

MERCHANT'S LINE ASSORTMENT, Consisting of Six Clocks, Two Each of the Three Patterns Shown above, 4 Light Oak and 2 Dark Oak, Height 23¾ inches, Width 15 inches, 8 inch Dial.

8 day, half hour strike	per case of six	$21	00
8 day, half hour strike, alarm	" "	23	70
8 day, half hour strike, gong	" "	23	40
8 day, half hour strike, gong alarm	" "	26	10

SIX IN A CASE. WEIGHT 80 LBS

NEW HAVEN MANTEL, MISSION AND HALL CLOCKS.

San Jose.

San Luis.

La Plata.

San Jose, height 20½ in., width 12 in., 6 in. wood dial, cast numerals and fancy brass hands, solid oak case, flemish finish, 8 day, half hour strike movement, cathedral gong, w't 16 lbs. . . . . each $ 4.35

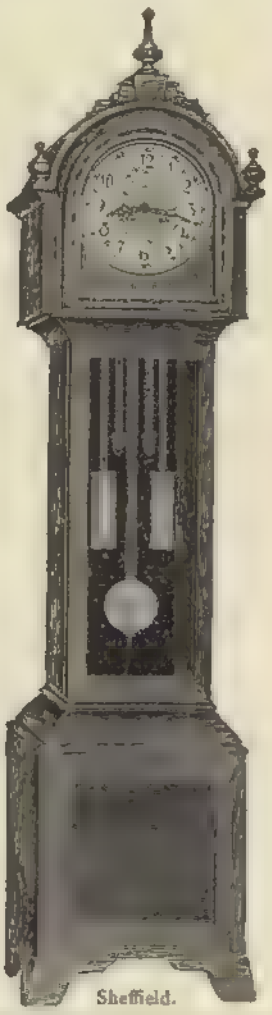
San Luis, height 30 in., width 13 in., 6 in. wood dial, white figures on background of artistic color, fancy brass hands, solid oak case, flemish finish, 8 day, half hour strike movement, cathedral gong, w't 22 lbs. . . . . each 6 50

La Plata, height 23 in., width 12½ in., 8 in. wood dial, cast numerals and fancy brass hands, solid oak case with stained glass, flemish finish, 8 day, half hour strike, cathedral gong, w't 30 lbs. . . . . each 10 90

ONE IN A BOX.

Arlington.

Wilmington.



Sheffield.

Annapolis.

Arlington, height 90½ in., width 21 in., 12 in. etched metal dial, highly polished solid mahogany case, 8 day weight movement, half hour strike, cathedral gong, w't 175 lbs. . . . . each $75.50

Wilmington, height 91 in., width 21½ in., 12 in. etched metal dial, highly polished antique oak or mahogany case with gilt top ornaments, 8 day weight movement, half hour strike, cathedral gong, w't 180 lbs. . . . . each 75.50

Sheffield, Height 90½ in., width 21 ¼ in., 12 in. etched metal dial, solid mahogany case, highly polished, 8 day weight movement, half hour strike, cathedral gong, w't 170 lbs. . . . . each 75.50

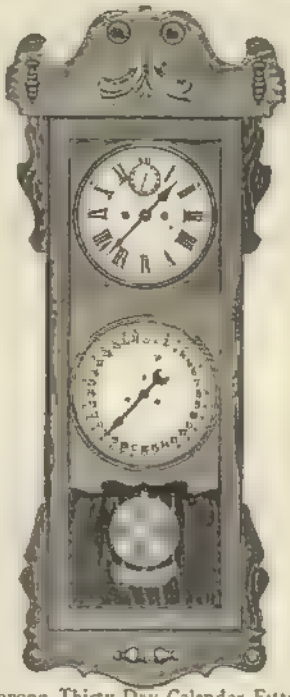
Annapolis, Height 91 in., width 23 in., 12 in. etched metal dial with moon phases, highly polished antique oak or mahogany case, 8 day weight movement, half hour strike, cathedral gong, w't 250 lbs. . . . . each 159.50

NEW HAVEN REGULATOR CLOCKS.

MAYWOOD, Height 43½ Inches, Width 17 Inches, Dial 8 Inch, Solid Antique Oak or Mahogany Case.

8 day time	each	$10 90
8 day time calendar	"	11 35
8 day gong	"	12 40
8 day gong calendar	"	12.85
30-day time	"	13.10

ONE IN A CASE, WEIGHT 43 LBS.



Showing Thirty-Day Calendar Fitting.

RUTLAND, Height 48 Inches, Width 19½ Inches, Dial 10 Inch, Solid Antique Oak or Mahogany Case.

8 day time	each	$14 50
8 day time calendar	"	14 85
8 day gong	"	16 00
8 day gong calendar	"	16 45
30 day time	"	16 70
30 day time calendar	"	17 50

ONE IN A CASE, WEIGHT 62 LBS.

SATURN, Height 34¾ Inches, Width 15¼ Inches, Solid Antique Oak Case.

30 day time ..... each $16.00

ONE IN A CASE, WEIGHT 28 LBS.

VAMOOSE, Height 45 Inches, Width 15¼ Inches, Dial 10 inch, Solid Antique Oak or Mahogany Case.

8 day time	each	$11.60
8 day time calendar	"	12 05
8 day gong	"	15 10
8 day gong calendar	"	15 55
30 day time calendar	"	13 80

ONE IN A CASE, WEIGHT 57 LBS.

SOLENT, Height 36¾ Inches, Width 13½ Inches, Dial 8 Inch, Solid Antique Oak Case.

8 day time	each	$13.75
8 day time calendar	"	14 20
8 day gong	"	15 52
8 day gong calendar	"	15 70

ONE IN A CASE, WEIGHT 28 LBS.

GRECIAN, Height 51 Inches, Width 20 Inches, Dial 10 Inch, Solid Antique Oak or Mahogany Case.

8 day time	each	$17 50
8 day time calendar	"	17 95
8 day gong	"	19 00
8 day gong calendar	"	19 45
8 day time	"	21 15
30 day time	"	19 70
30 day time calendar	"	22 50

ONE IN A CASE, WEIGHT 57 LBS.

NEW HAVEN BLACKWOOD MANTEL CLOCKS.

Bingen, height 10 in., width 12½ in., 6 in. pearl or ivorine dial, black enameled wood case, 8 day, half hour strike, cathedral gong movement, w't 16 lbs. ..... each $6 10

Brighton, height 10 in., width 12½ in 6 in. pearl or ivorine dial, black enameled wood case with marbleized pillars 8 day, half hour strike, cathedral gong movement, w't 17 lbs... each $6 50

Loring, height 11½ in., width 13½ in., pearl or ivorine dial, black enameled wood case with marbleized mouldings and pillars, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 18 lbs, each $8 00

Edgebrook, height 10¼ in., width 15½ in., pearl or ivorine dial, black enameled wood case, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 19 lbs., each $8.25

ONE IN A CASE

Elsworth, height 11½ in., width 15¼ in., 6 in. pearl or ivorine dial, black enameled wood case, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 23 lbs. each $8 75

Prescott, height 11½ in., width 19½ in., 6 in. pearl or ivorine dial, black enameled wood case with marbleized pillars, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 22 lbs. ..... each $9 45

Ottawa, height 11¾ in., width 16¼ in., 6 in. pearl dial, black enameled wood case with marbleized mouldings and pillars, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 22 lbs. each $9 75

Claypool, height 11½ in., width 18½ in., 6 in. pearl or ivorine dial, black enameled wood case with marbleized mouldings and pillars, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement each $9 45

ONE IN A CASE.

Woodbridge, height 11¾ in., width 18 in., 6 in. pearl or ivorine dial, black enameled wood case with marbleized mouldings and pillars, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 26 lbs., each. $10.15

Woodmont, height 12¼ in., width 19 in., 6 in. pearl or ivorine dial, black enameled wood case with marbleized mouldings and pillars, gilt or bronze trimmings, 8 day, half hour strike, cathedral gong movement, w't 24 lbs each..... $10 15

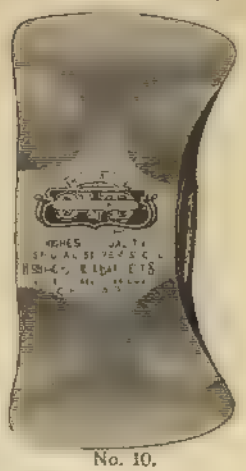
Carmona, height 13 in., width 18 in., 6 in. pearl or ivorine dial, black enameled wood case with marbleized mouldings and pillars, trimmings gilt or bronze, 8 day, half hour strike, cathedral gong w't 27 lbs., each $10.15

ONE IN A CASE

OVB UNHANDLED PHANTOM BEVELED AXES.

No. 1.

Forged Steel Body, Extra Quality Crucible Tool Steel Bits, Full Polished and Etched, Carefully Hand-Tempered over Natural Gas, Keen, Thin Ground Bits, with Patent Hand-Ground "Phantom" Bevels. The Expert Woodman's Axe. Throws the Chips well and "Clears" Quickly, Without Binding.



No. 10.

SINGLE BIT.

No. 1 OVB—Michigan Pattern.

Weights, Assorted, lbs. ...	3 to 4	3¼ to 4¼
W't per doz. ...	49	52 lbs.
Per dozen. ...	$17.50	18.00

Weights, Assorted, lbs. .	3½ to 4	3⅝ to 4⅛	4 to 5
W't per doz. ...	52	54	59 lbs.
Per dozen ...	$18.00	18.00	18.50

No. 2 OVB—Yankee Pattern.

Weights, Assorted, lbs. ...	3 to 4	3⅝ to 4⅛
W't per doz. ...	49	54 lbs.
Per dozen. ...	$17.50	18 00

Weights, Assorted, lbs. ...	4 to 5	4½ to 5½
W't per doz. ...	59	64 lbs.
Per dozen ...	$18 50	19 00

DOUBLE BIT.

No. 10 OVB—Michigan Pattern.

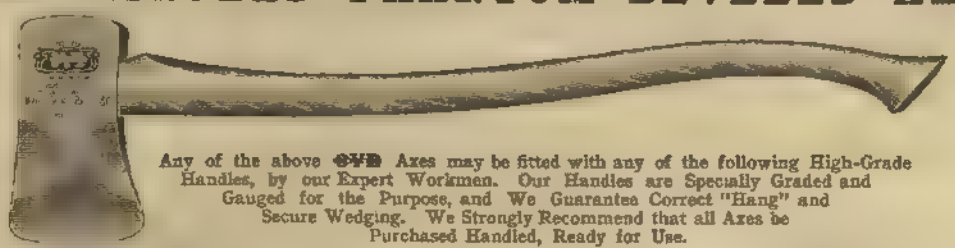
Weights, Assorted, lbs .	3⅛ to 4	3½ to 4½
W't per doz. ...	52	54 lbs.
Per dozen. ...	$22.00	22.00

Weights, Assorted, lbs . .	4 to 5
W't per doz. ...	59 lbs.
Per dozen. ...	$22 50

Showing the manner in which OVB Phantom Beveled Axes are packed.

ONE-TWELFTH DOZEN IN A CARTON, ONE DOZEN IN A CASE.

OVB HANDLED PHANTOM BEVELED AXES.



Any of the above OVB Axes may be fitted with any of the following High-Grade Handles, by our Expert Workmen. Our Handles are Specially Graded and Gauged for the Purpose, and We Guarantee Correct "Hang" and Secure Wedging. We Strongly Recommend that all Axes be Purchased Handled, Ready for Use.

SINGLE BIT.

Add the Following Extras to the Prices of Unhandled OVB Single Bit Axes Above:

No. A	With OVB regular oval handles fitted	extra per dozen $9 00
No. B	With OVB regular octagon handles fitted	9 00
No. C	With RIVOC regular oval handles fitted	7 50
No. D	With RIVOC regular octagon handles fitted	7 50
No. CC	With RIVOC slim lumbermen's handles fitted	7 50
No. DD	With RIVOC oak regular oval handle fitted	5 50
No. E	With Hib-Spe-Bar regular oval handles fitted, extra per dozen	5 50
No. F	With Hib-Spe-Bar regular octagon handles fitted, extra per dozen	5 50
No. EE	With Hib-Spe-Bar slim lumbermen's handles fitted, extra per dozen	5 50
No. FF	With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50

DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled OVB Double Bit Axes above:

No. T	With OVB regular oval handles fitted	extra per dozen $9 00
No. L	With RIVOC regular oval handles fitted	" " 7 50
No. LL	With RIVOC oak regular oval handles fitted	" " 5 50
No. P	With Hib-Spe-Bar regular oval handles fitted.	" " 5.50
No. N	With Hib-Spe-Bar regular octagon handles fitted. extra per dozen	5.50
No. PP	With Hib-Spe-Bar oak regular oval handles fitted extra per dozen	4.50

Our handled axes have the heads securely boxed, with the handles projecting, and fully burlapped. Handled axes weigh about 16 lbs per dozen more than the corresponding axes unhandled. In ordering handled axes always specify the brand and weight of the axe, and prefix to the axe number the letter designating the handle, thus:—"1 dozen No. E I O V B Axes, 3 to 4 lbs," which shows that No. 1 O. V. B. Phantom Beveled Michigan Pattern axes are desired, fitted with No. E Hib-Spe-Bar oval handles.

OVB UNHANDLED HAND MADE AXES.

No. 11

Forged Steel Body, Extra Quality Crucible Tool Steel Bits, with Natural Forge Finish Body, and Cross-Ground Temper-Blued Bit. Carefully Hand Tempered. Edge Whetted Ready for Use. An Old-Time Hand-Made Axe, whose Value lies in Its Material and Workmanship, Without Fancy Finish.

OUR VERY BEST OVB

No 110.

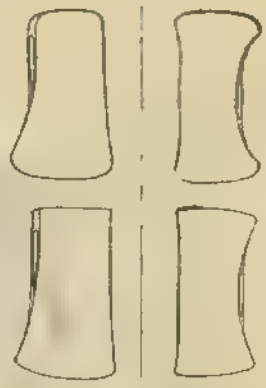
SINGLE BIT.

No. 11 OVB—Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3¼ to 4½
W't per doz.	49	52 lbs.
Per dozen.	$13.00	13.50
Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen.	$13 50	14.00

No. 12 OVB—Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen.	$13.00	13.50
Weights, Assorted, lbs.	4 to 5	4½ to 5½
W't per doz.	59	64 lbs.
Per dozen.	$14.00	14.50



DOUBLE BIT.

No. 110 OVB—Michigan Pattern.

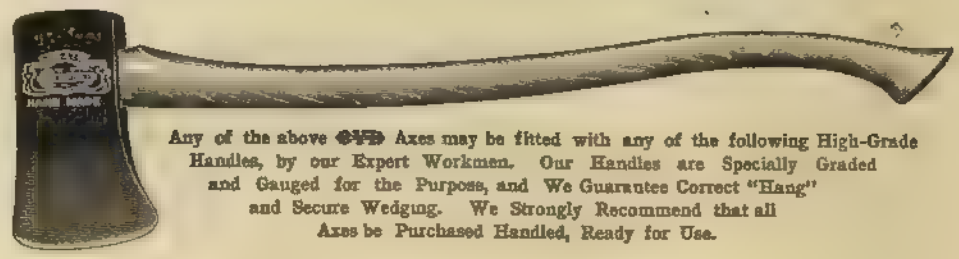
Weights, Assorted, lbs.	3½ to 4	3½ to 4½	4 to 5
W't per doz.	52	54	59 lbs.
Per doz.	$17.50	17 50	18.00

No. 120 OVB—Western Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5	4½ to 5½
W't per doz.	54	59	64 lbs.
Per dozen	$17.50	18.00	18.50

ONE-TWELFTH DOZEN IN A CARTON; ONE DOZEN IN A CASE.

OVB HANDLED HAND MADE AXES.



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SINGLE BIT.

Add the Following Extras to the Prices of Unhandled OVB Single Bit Axes Above.

No. A—With OVB regular oval handles fitted...extra per dozen	$9.00
No. B—With OVB regular octagon handles fitted " "	9.00
No. C—With REVOC regular oval handles fitted. . " "	7.50
No. D—With REVOC regular octagon handles fitted. " "	7.50
No. CC—With REVOC slim lumbermen's handles fitted " "	7 50
No. DD—With REVOC oak regular oval handles fitted. " "	5.50
No. E—With Hib-Spe-Bar regular oval handles fitted " "	5.50
No. F—With Hib-Spe-Bar regular octagon handles fitted, extra per dozen	5.50
No. EE—With Hib-Spe-Bar slim lumbermen's handles fitted, extra per dozen	5 50
No. FF—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50

DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled OVB Double Bit Axes Above.

No. T—With OVB regular oval handles fitted...extra per dozen	$9.00
No. L—With REVOC regular oval handles fitted.... " "	7.50
No. LL—With REVOC oak regular oval handles fitted " "	5.50
No. P—With Hib-Spe-Bar regular oval handles fitted. " "	5.50
No. N—With Hib-Spe-Bar regular octagon handles fitted, extra per dozen	5.50
No. PP—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4.50

Our handled axes have the heads securely boxed, with the handles projecting, and fully burlapped Handled axes weigh about 16 lbs per dozen more than the corresponding axes unhandled. In ordering handled axes, always specify the brand and weight of the axe, and prefix to the axe number the letter designating the handle, thus:—"1 dozen No. D12 O. V. B. Axes, 4 to 5 lbs.," which shows that No. 12 O V. B. Hand-Made Yankee Pattern Axes are desired, fitted with No. D, REVOC octagon handles.

O.V.B. UNHANDLED BRONZED AXES.

No. 31

Forged Steel Gold Bronzed Body, Extra Quality Crucible Tool Steel Polished Bits, Carefully Hand Tempered Over Natural Gas, Keen, Thin-Ground Bits. Our Standard Finish, but Much Finer in Workmanship than Other Axes Usually Sold at the Price.

No. 340.

O.V.B. OUR VERY BEST

SINGLE BIT.

No. 31 O.V.B.—Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	3½ to 4
W't per doz.	49.	52	52 lbs.
Per dozen	$11.00	11 50	11.50
Weights, Assorted, lbs	3½ to 4½	3¾ to 4¾	4 to 5
W't per doz	54	57	59 lbs.
Per dozen	$11.50	12.00	12.00

No. 32 O.V.B.—Yankee Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen	$11 00	11 50
Weights, Assorted, lbs	4 to 5	4½ to 5½
W't per doz.	59	64 lbs
Per dozen	$12 00	12.50

No. 34 O.V.B.—Dayton Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5	4½ to 5½
W't per doz.	54	59	64 lbs.
Per dozen	$11.50	12.00	12.50

ONE DOZEN IN A CASE.

DOUBLE BIT.

No. 310 O.V.B.—Michigan Pattern.

Weights, Assorted, lbs	3½ to 4	3½ to 4½
W't per doz	52	54 lbs
Per dozen	$15 50	15 50
Weights, Assorted, lbs		4 to 5
W't per doz		59 lbs.
Per dozen		$16 00

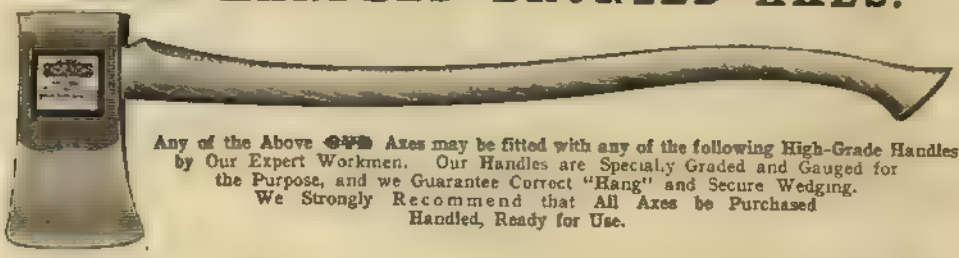
No. 320 O.V.B.—Western Pattern.

Weights, Assorted, lbs.	3½ to 4	3½ to 4½
W't per doz.	52	54 lbs.
Per dozen	$15 50	15 50
Weights, Assorted, lbs	4 to 5	4½ to 5½
W't per doz	59	64 lbs
Per dozen	$16 00	16 50

No. 340 O.V.B.—Reversible Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen	$15.00	15.50

O.V.B. HANDLED BRONZED AXES.



Any of the Above O.V.B. Axes may be fitted with any of the following High-Grade Handles by Our Expert Workmen. Our Handles are Specially Graded and Gauged for the Purpose, and we Guarantee Correct "Hang" and Secure Wedging. We Strongly Recommend that All Axes be Purchased Handled, Ready for Use.

SINGLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Single Bit Axes Above.

No. A	With O.V.B. regular oval handles fitted...extra per dozen	$9 00
No. B	With O.V.B. regular octagon handles, fitted " "	9 00
No. C	With [illegible] regular oval handles, fitted.. " "	7.50
No. D	With [illegible] regular octagon handles fitted " "	7 50
No. CC	With [illegible] slim lumbermen's handles fitted " "	7 50
No. DD	With [illegible] oak regular oval handles fitted " "	5 50
No. E	With Hib-Spe-Bar regular oval handles fitted " "	5 50
No. F	With Hib-Spe-Bar regular octagon handles fitted" "	5.50
No. EE	With Hib-Spe-Bar slim lumbermen's handles fitted, extra per dozen	5.50
No. FF	With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50
No. J	With Il-a-noy regular oval handles, fitted..extra per dozen	4 00

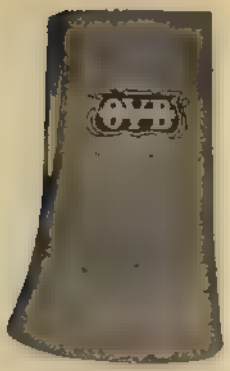
DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Double Bit Axes Above.

No. T	With O.V.B. regular oval handles, fitted...extra per dozen	$9.00
No. L	With [illegible] regular oval handles fitted.... " "	7.50
No. LL	With Hib-Spe-Bar oak regular oval handles fitted extra per dozen	5 50
No. P	With Hib-Spe-Bar regular oval handles fitted extra per doz.	5 50
No. N	With Hib-Spe-Bar regular octagon handles fitted " "	5 50
No. PP	With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4.50
No. R	With Il-a-noy regular oval handles fitted extra per dozen	4 00

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 16 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes, always specify the brand and size of the axe and prefix to the number the letter designating the handle thus, "1 dozen No. F34 O. V. B. axes, 4 to 5 lbs.," which means that No. 34 O. V. B. Bronzed Dayton Pattern axes are desired, fitted with No. F. Hib-Spe-Bar octagon handles.

O.V.B. UNHANDLED POLISHED AXES.



No. 22

Forged Steel Body, Extra Quality Crucible Tool Steel Bits, Full Polished and Etched, Carefully Hand Tempered Over Natural Gas, Keen, Thin-Ground Bit. A Highly Finished Axe at a Very Moderate Price.

OUR VERY BEST O V B

No. 210.

SINGLE BIT.

No. 21 O.V.B.—Michigan Pattern.

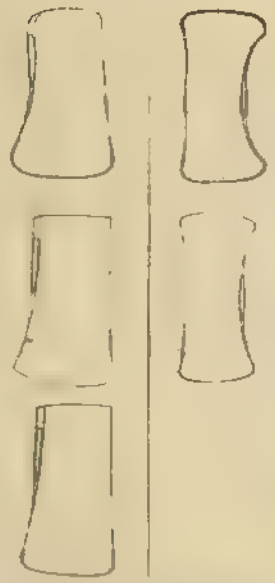
Weights, Assorted, lbs.	3 to 4	3½ to 3¾	3¼ to 4½
W't per doz.	49	49	52 lbs.
Per dozen	$13 00	13 00	15 50
Weights, Assorted, lbs.	3½ to 4	3½ to 4½	3¾ to 4½
W't per doz	52	54	54 lbs.
Per dozen	$13.50	13.50	13.50
Weights, Assorted, lbs.	3¾ to 4¾		4 to 5
W't per doz.	57		59 lbs.
Per dozen	$14 00		14 00

No. 22 O.V.B.—Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz	49	54 lbs.
Per dozen	$13 00	13 50
Weights, Assorted, lbs.	4 to 5	4½ to 5½
W't per doz.	59	64 lbs.
Per dozen	$14.00	14 50

No. 23 O.V.B.—Wisconsin Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4	3½ to 4½
W't per doz.	49	52	54 lbs.
Per dozen	$13.00	13.50	13.50



ONE DOZEN IN A CASE.

DOUBLE BIT.

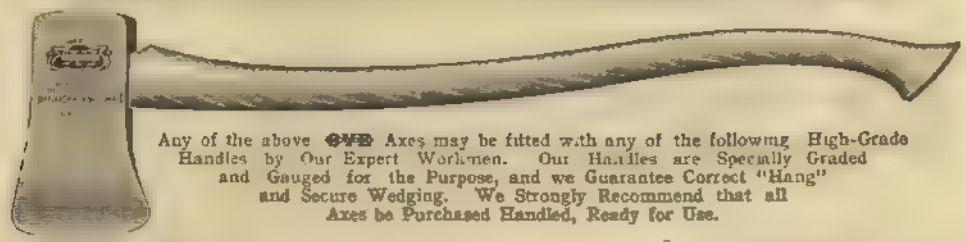
No. 210 O.V.B.—Michigan Pattern.

Weights, Assorted, lbs.	3½ to 4	3½ to 4½
W't per doz.	52	54 lbs.
Per dozen	$17 50	17 50
Weights, Assorted, lbs		4 to 5
W't per doz.		59 lbs.
Per dozen		$18.00

No. 230 O.V.B.—Wisconsin Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen.	$17 50	18 00

O.V.B. HANDLED POLISHED AXES.



Any of the above O.V.B. Axes may be fitted with any of the following High-Grade Handles by Our Expert Workmen. Our Handles are Specially Graded and Gauged for the Purpose, and we Guarantee Correct "Hang" and Secure Wedging. We Strongly Recommend that all Axes be Purchased Handled, Ready for Use.

SINGLE BIT.

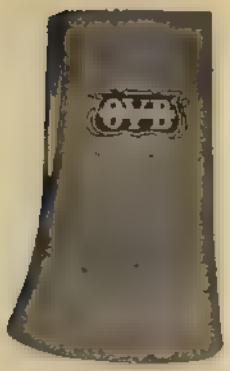
Add the Following Extras to the Prices of Unhandled O.V.B. Single Bit Axes Above.		
No. A—With O.V.B. regular oval handles fitted	extra per dozen	$6 00
No. B—With O.V.B. regular octagon handles fitted	" "	9.00
No. C—With [illegible] regular oval handles fitted	" "	7.50
No. D—With [illegible] regular octagon handles fitted	" "	7 50
No. CC—With [illegible] shim lumbermen's handles fitted	" "	7 50
No. DD—With [illegible] regular oval handles fitted	" "	5 50
No. E—With Hib-Spe-Bar regular oval handles fitted	" "	5 50
No. F—With Hib-Spe-Bar regular octagon handles fitted	extra per dozen	5.50
No. EE—With Hib-Spe-Bar shim lumbermen's handles fitted	extra per dozen	5 50
No. FF—With Hib-Spe-Bar's regular oval handles fitted	extra per dozen	4 50

DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Double Bit Axes Above.		
No. T—With O.V.B. regular oval handles fitted	extra per dozen	$6 00
No. L—With [illegible] regular oval handles fitted	" "	7 50
No. LL—With Hib-Spe-Bar oak regular oval handles fitted	extra per dozen	5.50
No. P—With Hib-Spe-Bar regular oval handles fitted,	extra per dozen	5 50
No. R—With Hib-Spe-Bar regular octagon handles fitted,	extra per dozen	5.50
No. PP—With Hib-Spe-Bar oak regular oval handles, fitted,	extra per dozen	4 50

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 16 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes always specify the brand and weight of the axe, and prefix to the axe number the letter designating the handle, thus "1 dozen No. P210 O. V. B. axes, 4 to 5 lbs," which shows that No. 210 O. V. B. Polished Michigan Pattern Double Bit axes are desired, fitted with No. P "Hib-Spe-Bar" oval handles.

O.V.B. UNHANDLED POLISHED AXES.



No. 22

Forged Steel Body, Extra Quality Crucible Tool Steel Bits, Full Polished and Etched, Carefully Hand Tempered Over Natural Gas, Keen, Thin-Ground Bit. A Highly Finished Axe at a Very Moderate Price.

OUR VERY BEST O V B

No. 210.

SINGLE BIT.

No. 21 O.V.B.—Michigan Pattern.

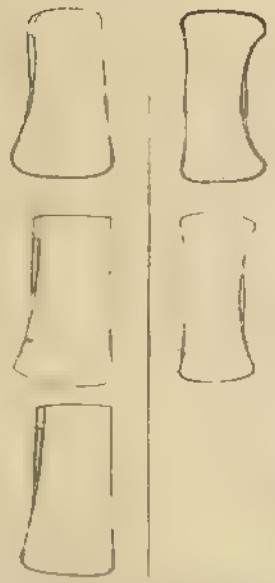
Weights, Assorted, lbs.	3 to 4	3½ to 3¾	3¼ to 4½
W't per doz.	49	49	52 lbs.
Per dozen	$13 00	13 00	15 50
Weights, Assorted, lbs.	3½ to 4	3½ to 4½	3¾ to 4½
W't per doz	52	54	54 lbs.
Per dozen	$13.50	13.50	13.50
Weights, Assorted, lbs.	3¾ to 4¾		4 to 5
W't per doz.	57		59 lbs.
Per dozen	$14 00		14 00

No. 22 O.V.B.—Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz	49	54 lbs.
Per dozen	$13 00	13 50
Weights, Assorted, lbs.	4 to 5	4½ to 5½
W't per doz.	59	64 lbs.
Per dozen	$14.00	14 50

No. 23 O.V.B.—Wisconsin Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4	3½ to 4½
W't per doz.	49	52	54 lbs.
Per dozen	$13.00	13.50	13.50



ONE DOZEN IN A CASE.

DOUBLE BIT.

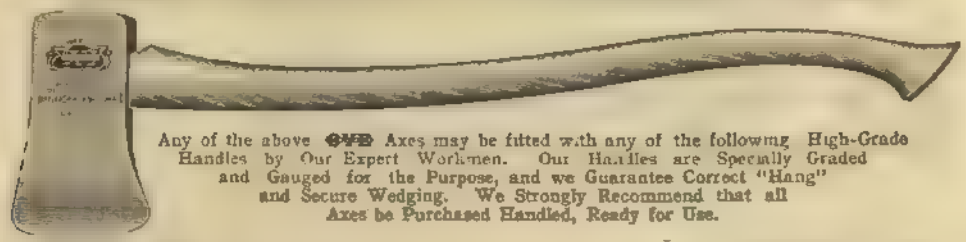
No. 210 O.V.B.—Michigan Pattern.

Weights, Assorted, lbs.	3½ to 4	3½ to 4½
W't per doz.	52	54 lbs.
Per dozen	$17 50	17 50
Weights, Assorted, lbs		4 to 5
W't per doz.		59 lbs.
Per dozen		$18.00

No. 230 O.V.B.—Wisconsin Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen.	$17 50	18 00

O.V.B. HANDLED POLISHED AXES.



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SINGLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Single Bit Axes Above.		
No. A—With O.V.B. regular oval handles fitted	extra per dozen	$6 00
No. B—With O.V.B. regular octagon handles fitted	" "	9.00
No. C—With [illegible] regular oval handles fitted	" "	7.50
No. D—With [illegible] regular octagon handles fitted	" "	7 50
No. CC—With [illegible] shim lumbermen's handles fitted	" "	7 50
No. DD—With [illegible] regular oval handles fitted	" "	5 50
No. E—With Hib-Spe-Bar regular oval handles fitted	" "	5 50
No. F—With Hib-Spe-Bar regular octagon handles fitted	extra per dozen	5.50
No. EE—With Hib-Spe-Bar shim lumbermen's handles fitted	extra per dozen	5 50
No. FF—With Hib-Spe-Bar's regular oval handles fitted	extra per dozen	4 50

DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Double Bit Axes Above.		
No. T—With O.V.B. regular oval handles fitted	extra per dozen	$6 00
No. L—With [illegible] regular oval handles fitted	" "	7 50
No. LL—With Hib-Spe-Bar oak regular oval handles fitted	extra per dozen	5.50
No. P—With Hib-Spe-Bar regular oval handles fitted,	extra per dozen	5 50
No. R—With Hib-Spe-Bar regular octagon handles fitted,	extra per dozen	5.50
No. PP—With Hib-Spe-Bar oak regular oval handles, fitted,	extra per dozen	4 50

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 16 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes always specify the brand and weight of the axe, and prefix to the axe number the letter designating the handle, thus "1 dozen No. P210 O. V. B. axes, 4 to 5 lbs," which shows that No. 210 O. V. B. Polished Michigan Pattern Double Bit axes are desired, fitted with No. P "Hib-Spe-Bar" oval handles.

O.V.B. UNHANDLED BRONZED AXES.

No. 31

Forged Steel Gold Bronzed Body, Extra Quality Crucible Tool Steel Polished Bits, Carefully Hand Tempered Over Natural Gas, Keen, Thin-Ground Bits. Our Standard Finish, but Much Finer in Workmanship than Other Axes Usually Sold at the Price.

No. 340.

O.V.B. OUR VERY BEST

SINGLE BIT.

No. 31 O.V.B.—Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	3½ to 4
W't per doz.	49.	52	52 lbs.
Per dozen	$11.00	11 50	11.50
Weights, Assorted, lbs	3½ to 4½	3¾ to 4¾	4 to 5
W't per doz	54	57	59 lbs.
Per dozen	$11.50	12.00	12.00

No. 32 O.V.B.—Yankee Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen	$11 00	11 50
Weights, Assorted, lbs	4 to 5	4½ to 5½
W't per doz.	59	64 lbs
Per dozen	$12 00	12.50

No. 34 O.V.B.—Dayton Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5	4½ to 5½
W't per doz.	54	59	64 lbs.
Per dozen	$11.50	12.00	12.50

ONE DOZEN IN A CASE.

DOUBLE BIT.

No. 310 O.V.B.—Michigan Pattern.

Weights, Assorted, lbs	3½ to 4	3½ to 4½
W't per doz	52	54 lbs
Per dozen	$15 50	15 50
Weights, Assorted, lbs		4 to 5
W't per doz		59 lbs.
Per dozen		$16 00

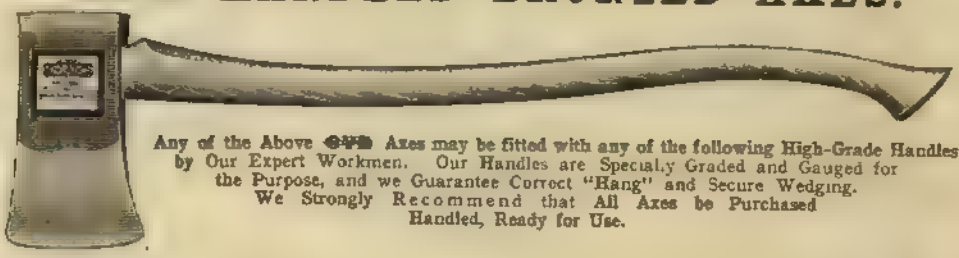
No. 320 O.V.B.—Western Pattern.

Weights, Assorted, lbs.	3½ to 4	3½ to 4½
W't per doz.	52	54 lbs.
Per dozen	$15 50	15 50
Weights, Assorted, lbs	4 to 5	4½ to 5½
W't per doz	59	64 lbs
Per dozen	$16 00	16 50

No. 340 O.V.B.—Reversible Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½
W't per doz.	49	54 lbs.
Per dozen	$15.00	15.50

O.V.B. HANDLED BRONZED AXES.



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SINGLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Single Bit Axes Above.

No. A	With O.V.B. regular oval handles fitted...extra per dozen	$9 00
No. B	With O.V.B. regular octagon handles, fitted " "	9 00
No. C	With [illegible] regular oval handles, fitted.. " "	7.50
No. D	With [illegible] regular octagon handles fitted " "	7 50
No. CC	With [illegible] slim lumbermen's handles fitted " "	7 50
No. DD	With [illegible] oak regular oval handles fitted " "	5 50
No. E	With Hib-Spe-Bar regular oval handles fitted " "	5 50
No. F	With Hib-Spe-Bar regular octagon handles fitted" "	5.50
No. EE	With Hib-Spe-Bar slim lumbermen's handles fitted, extra per dozen	5.50
No. FF	With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50
No. J	With Il-a-noy regular oval handles, fitted..extra per dozen	4 00

DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled O.V.B. Double Bit Axes Above.

No. T	With O.V.B. regular oval handles, fitted...extra per dozen	$9.00
No. L	With [illegible] regular oval handles fitted.... " "	7.50
No. LL	With Hib-Spe-Bar oak regular oval handles fitted extra per dozen	5 50
No. P	With Hib-Spe-Bar regular oval handles fitted extra per doz.	5 50
No. N	With Hib-Spe-Bar regular octagon handles fitted " "	5 50
No. PP	With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4.50
No. R	With Il-a-noy regular oval handles fitted extra per dozen	4 00

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 16 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes, always specify the brand and size of the axe and prefix to the number the letter designating the handle thus, "1 dozen No. F34 O. V. B. axes, 4 to 5 lbs.," which means that No. 34 O. V. B. Bronzed Dayton Pattern axes are desired, fitted with No. F. Hib-Spe-Bar octagon handles.

"OUR VERY BEST" LANTERNS.

COLD BLAST.

Large Size Fount, Burns Thirty Hours, Heavy Brass Burner, One Inch Wick, Extra Large Funnel Shaped Brass Filler Screw, Brass Bound Globe Lift Placed Between the Tubes, Basket Globe Guard Which Does Not Touch the Globe at Any Point, No. 2 Crystal Cold Blast Globe (No. 611)

No. 2 CVB—Tin fount, full weight IX-AAA charcoal plate, heavily retinned.....per dozen $14 50
No. 22 CVB—Entirely red enameled, baked on.....per dozen 15 35
No. 20 CVB—Planished copper bottom, per dozen..... 18.90
No. 25 CVB—Planished copper fount, per dozen..... 19 50

These lanterns will not blow out in any wind; the combustion is perfect and the light white to the extreme edge of flame

HALF DOZEN IN A CASE. WEIGHT PER DOZEN 40 LBS

"BANTIE" COLD BLAST.

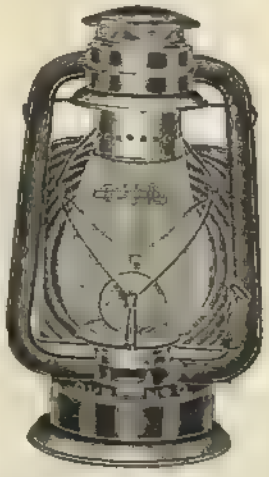
Fount Holds Oil to Burn Twenty Hours, Extreme Height 12½ Inches, Width Over Tubes 7½ Inches, Brass Burner with ⅝ Inch Wick, Brass Filler Screw, Brass Bound Globe Lift Placed Between Tubes, Basket Globe Guard Which Does Not Touch Globe at Any Point, Crystal "Bantie" Cold Blast Globe (No. 610).

No. 1 CVB—BANTIE, tin fount, heavily retinned.....per dozen $12 80
No. 10 CVB—BANTIE, polished brass, per dozen..... 21 65
No. 15 CVB—BANTIE, brass nickel plated.....per dozen 30 00

These lanterns will not blow out in any wind, the combustion is perfect and the light white to the extreme edge of flame.

HALF DOZEN IN A CASE. WEIGHT PER DOZEN 30 LBS.

COLD BLAST DASH.



Large Size Fount, Burns Thirty Hours, Heavy Brass Burner, One Inch Wick, Extra Large Funnel Shaped Brass Filler Screw, Brass Bound Globe Lift Placed Between Tubes, Bulls Eye Attached to Perforated Globe Plate, Corrugated Reflector with Spring Dash Board Attachment, Basket Globe Guard Which Does Not Touch Globe at Any Point, No. 2 Crystal Cold Blast No. 611)

No. 200 CVB—Blue lacquered per dozen..... $20 60
No. 202 CVB—Red enameled, baked on per dozen..... 20 60

These lanterns will not blow out in any wind, the combustion is perfect and the light white to the extreme edge of flame.

HALF DOZEN IN A BOX. WEIGHT PER DOZEN 50 LBS

"BANTIE" COLD BLAST DASH.

No. 100 CVB—Red enameled, height 12½ in., brass burner, ⅝ in. wick, brass filler cap and screw, brass bound globe lift, "Bantie" cold blast globe (No. 610), corrugated tin reflector with spring dash board attachment, w't per doz. 40 lbs..... per dozen $18 75

These lanterns will not blow out in any wind, the combustion is perfect and the light white to the extreme edge of flame.

HALF DOZEN IN A CASE.

ORDINANCE LANTERNS.

No. 102 CVB—Red enameled, extreme height 12½ in., corrugated reflector with 1¼ in. ruby lens rear signal, brass burner with ⅝ in. wick, brass filler cap and screw, brass bound globe lift, "Bantie" cold blast globe (No. 610) complete with No. 45 CVB side holders, w't per doz. 35 lbs. per dozen $20 60

HALF DOZEN IN A CASE WEIGHT PER DOZEN 35 LBS

EXTRA SIDE HOLDERS.

No. 45 CVB—Red enameled, plate to screw on vehicle and attachment to fasten on lantern per dozen $3 00

TUBULAR.

Fount Holds Kerosene to Burn Eighteen Hours, Extra Size Funnel Shape Filler Cap and Screw, Heavy Brass Burner, ⅝ Inch Wick, Brass Bound Globe Lift Between Tubes, Substantial Globe Guard, No. 0 Crystal Tubular Globe (No. 600).

No. 242 CVB—Tin fount, heavily retinned w't per doz 30 lbs. per dozen $ 8.40
No. 2423 CVB—Ruby globe.. " " 10 75

These lanterns are used by railroad companies and contracting companies to signal danger.

No. 2420 CVB—Planished copper bottom.....per dozen $11.80
No. 2425 CVB—Planished copper fount.....per dozen 17 00
No. 243 CVB—Large fount, holds kerosene to burn thirty hours. No. 2 tubular burner, 1 in. wick, extra large size funnel shaped brass filler screw, brass bound globe lift placed between the tubes, substantial globe guard, No. 0 crystal tubular globe (No. 600). w't per doz. 40 lbs..... per dozen $12 00

HALF DOZEN IN A CASE

LANTERNS, LAMPS AND SUPPLIES

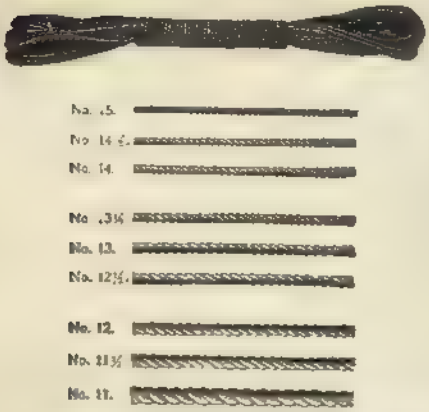
COOK AND HEATING STOVES

HIBBARD, SPENCER, BARTLETT & CO.

CHICAGO

CHALK LINES, REELS AND PLUMB BOBS.

CHALK LINES.



Twisted, White Cotton, in 20 Foot Hanks.

Nos	15	14½	14	13½
Per dozen	$0 26	30	33	37
Nos	13	12½	12	11½	11
Per dozen	$0 45	.50	.76	.86	1 05

ONE DOZEN IN A BUNDLE. HALF GROSS IN A BOX.

Twisted, White Cotton, in 50 Foot Balls.

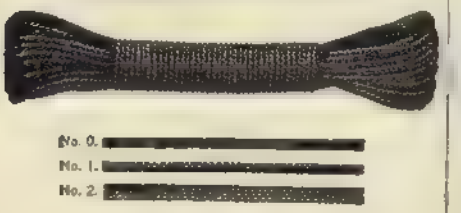
Nos	1	2	3	4
Per dozen	$0.80	.90	1.00	1.20

ONE DOZEN BALLS IN A BOX.

Twisted, White Cotton, in 100 Foot Balls.

Nos	2	3	4
Per dozen	$1.80	2 00	2.40

ONE DOZEN BALLS IN A BOX.

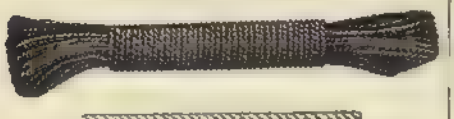


Braided White Cotton, in 20 Foot Hanks.

Nos	0	1	2
Per dozen	$0 85	.90	.95

HALF GROSS IN A BOX.

MASONS' LINES.



No. 21—Hard laid, yellow cotton, 100 ft. in hank per dozen $3 25

ONE DOZEN HANKS IN A BOX. WEIGHT 1½ LBS. PER DOZEN.

Braided White Cotton, in 48 Foot Hanks.

Nos	3½	4	4½
Per dozen	$1 50	2.00	2 50

ONE DOZEN IN A BOX.

CARPENTERS' CHALK.

No. 5—White, hemispherical . . . per box $0.45
No. 3—Red, hemispherical . . . . . " .55
No. 4—Blue, hemispherical . . . . . " .60

HALF GROSS IN A BOX. WEIGHT 5 LBS PER BOX.

CHALK LINE REELS.

No. 10—Beechwood, length 3 in., diam. 2 in., w't per doz. 1 lb . . . . . per dozen $0 60

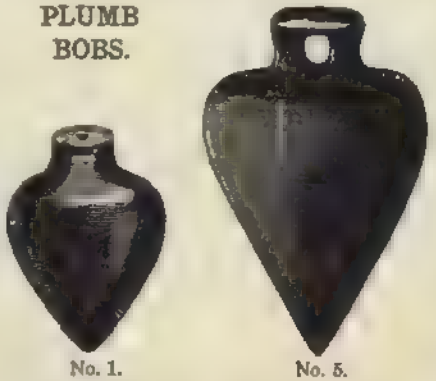
TWELVE DOZEN IN A BOX.

No. 199—Beechwood length 3¾ in., diam. 3 in. w't per doz 2¼ lbs., per dozen 1 60

No. 12—Beechwood, length 3 in., diam. 2 in. with steel scratch awl w't per doz. 1¾ lbs . . . . . per dozen $1 50

ONE DOZEN IN A BOX.

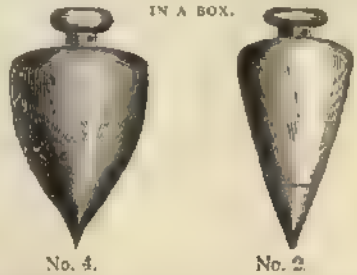
PLUMB BOBS.



No. 1. No. 5.

No. 1—2¼ in., iron, japanned, w't 8½ oz., ... per dozen $1.25
No. 1½—4½ in., iron, japanned, w't 1½ lbs . . . . . per dozen 3 00
No. 5—4½ in., iron, japanned, w't 2¾ lbs . . . . . per dozen 3 50

NO. 1, ONE DOZEN; NOS. 1½ AND 5, HALF DOZEN IN A BOX.



No. 4. No. 2.

No. 4—2¾ in., lead, steel point, w't 13 oz., per dozen $5.00
No. 2—3 in., brass, steel point, w't 6½ oz . . . . . per dozen 6 00
No. 3—3 in., brass, steel point, w't 12 oz., per dozen. 8.00

HALF DOZEN IN A BOX.

PLUMB BOBS.

No. 01—3¾ in., bronze metal, with reel and line, steel point, small w't 8 oz., per dozen $18.00
No. 02—4½ in., bronze metal, with reel and line, steel point, large, w't 12 oz per dozen 21.00

No. 05—4½ in., iron, with reel and line, with steel point, large, w't 12 oz., per dozen $12 00

ONE IN A BOX.

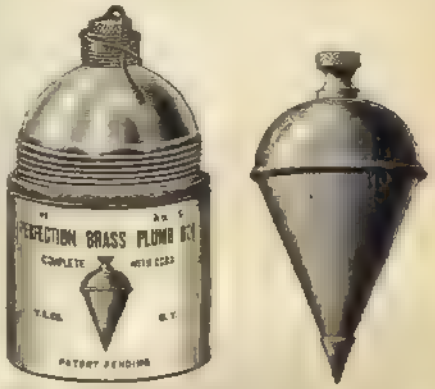
No. 11. No. 12

Soft Gray Iron, Nickel Plated, Highly Finished.

No. 11 Length 3 in., w't 4½ oz., per dozen $18 00
No. 12—Length 3½ in., w't 13½ oz per dozen 24 00

Sharp points give correct alignment.

ONE DOZEN IN A BOX



Highly Polished Brass Finish Case with Steel Spindle, Hardened Steel Points, with Cord Attached.

Nos	111	112	113
Length	2¼	3	3¾ in.
Weight	8 oz	14 oz.	1½ lbs.
Per dozen	$9 00	12 00	15 00
Nos		114	115
Length		4½	5 in.
Weight		2¼ lbs	3½ lbs
Per dozen		$18 00	24 00

Made by new process centered to secure an exact, even balance of weight. Very accurate and reliable. Line is not soldered but a brass cap pulled on making them cheap and very durable plumb bobs

ONE IN A WOOD BOX WITH SCREW TOP.

MINCING KNIVES, CLEAVERS, ETC.

MINCING KNIVES.

No. 3. No. 4

No. 3—Steel blade, malleable iron shank, beech handle, w't per doz. 2½ lbs., per dozen $1.00

No. 4—Double steel blades, malleable iron frame, beech handle, w't per doz 4 lbs..... per dozen 1.35

ONE DOZEN IN A BOX.

No. 17 No. 199

No. 17—Steel blade, malleable iron frame, wire braced, beech handle, w't per doz. 4½ lbs ....per dozen $2.00

ONE DOZEN IN A BOX

No. 199—Double steel blades, malleable wire braced, beech handle, w't per doz 6 lbs.. ...per dozen 2.75

HALF DOZEN IN A BOX.

No. 5 No. 7

No. 5—Extra cast steel blade, japanned iron handle and frame, w't per doz. 6½ lbs... per dozen $2.50

No. 7—Steel blade and handle, of one piece, nickel plated, highly polished, w't per doz. 3½ lbs.. . . .per dozen 2.50

ONE DOZEN IN A BOX.

No. 6—Extra cast steel blade, japanned, beech handle and frame, w't per doz. 5 lbs ..... per dozen $4.00

ONE DOZEN IN A BOX

MINCING KNIVES.

No. 40. No. 60

No. 40—4 cast steel blades, japanned iron handle, w't per doz. 6 lbs., per dozen $3.00

No. 60—6 cast steel blades, otherwise same as No. 40, w't per doz. 7 lbs., per dozen..... 4.00

ONE DOZEN IN A BOX.

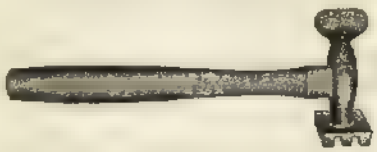
No. 2. No. 250.

No. 2—Extra quality cast steel blade and shank, riveted through handle, hand forged from the bar and tempered, black handle, w't per doz. 6 lbs., per dozen..... $5.50

No. 250—Extra quality cast steel, hand forged from the bar, riveted through handle and tempered, polished red handle with nickel plated ferrules, w't per doz. 6 lbs.. .....per dozen 6.25

ONE DOZEN IN A BOX.

STEAK POUNDERS.



No. 2—Tinned iron, stained wood handle, w't per doz. 7 lbs .. per dozen $2.00

ONE DOZEN IN A BOX.

No. 3—Tinned iron, inserted steel blade, maple handle, w't per doz. 10 lbs, per dozen..... $4.00

HALF DOZEN IN A BOX.

BUTTER AND CHEESE TRYERS.

No. 10—Cheese, 6 in., nickel plated, w't per doz. 2 lbs.....per dozen $6.00

No. 11—Butter, 21 in., nickel plated, w't per doz. 7½ lbs.....per dozen 10.50

The size given is the length of the blade.

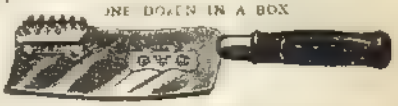
HALF DOZEN IN A BOX

HOUSEHOLD CLEAVERS.

"OUR VERY BEST."

No. 15 CVB—French pattern, 7 in heavy forged cutlery steel blade, highly polished and oil tempered, with tang securely riveted into handle, 5½ in rubberoid hardwood waterproof handle, extra heavy ferrule, w't per doz. 8 lbs. per dozen..... $9.60

ONE DOZEN IN A BOX



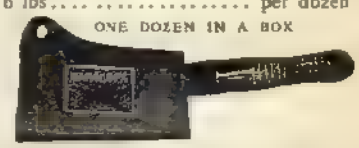
"OUR VERY BEST."

No. 18 CVB—French pattern, 7 in. heavy forged cutlery steel blade, highly polished and oil tempered, with tang securely riveted into handle, 5½ in. rubberoid hardwood waterproof handle, extra heavy ferrule, *with 18 point steel meat tenderer*, w't per doz. 9 lbs., per dozen.....$12.00

ONE DOZEN IN A BOX.

No. 10—STANDARD, 6 in. special cold rolled steel blade, red enameled waterproof handle, with ferrule, w't per doz 6 lbs..... per dozen $4.80

ONE DOZEN IN A BOX

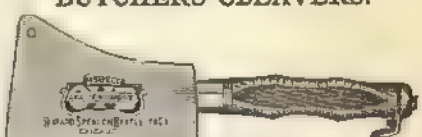


MARICOPA, Cast Steel Blade, Polished, Riveted Hardwood Scored Handle.

No. 20—Inches,	6	7	8
W't per doz....	20	22	25 lbs.
Per dozen .	$10.00	11.00	12.00

HALF DOZEN IN A BOX.

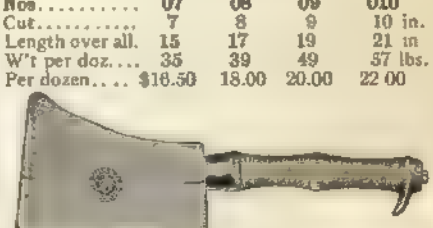
BUTCHERS' CLEAVERS.



"OUR VERY BEST"

Solid Forged Steel, One-Piece Blade and Tang Bolted Through the Handle, Polished Blade, Select Hickory Handle, Cherry Stained, Scored and Flattened at Sides, Patent Hook, End to Prevent Slipping from Hand,

Nos.....	Heavy Steel Ferrule. 07	08	09	010
Cut.....	7	8	9	10 in.
Length over all.	15	17	19	21 in
W't per doz....	35	39	49	57 lbs.
Per dozen....	$16.50	18.00	20.00	22.00



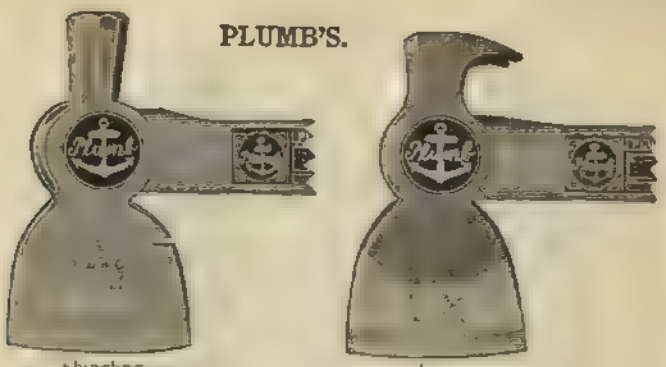
PLUMB'S, Cast Steel, Polished Blade, Varnished Hickory Handle, Scored, with Flattened Sides; Through Bolted, with Finger Hook.

Nos.....	0	1	2	3
Cut	7	8	9	10 in.
W't per doz. .	35	36	49	57 lbs
Per dozen. .	$16.50	18.00	20.00	22.00

HALF DOZEN IN A BOX.

HATCHETS.

PLUMB'S.

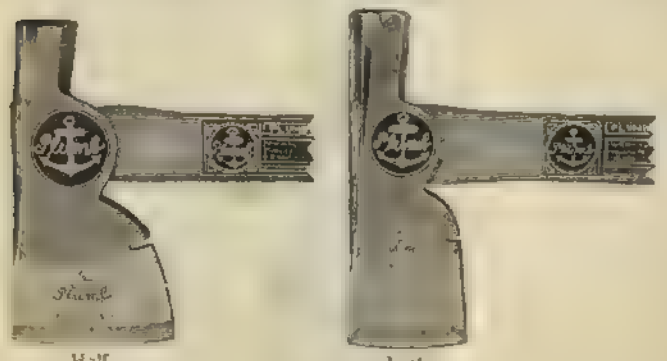


Shingling. Claw.

Forged Steel, Gold Bronzed Body, Polished Head and Bit, with White Hickory Handle.

No. 1—Shingling, 3½ in bit, w't per doz 29 lbs	per dozen	$	8.00
No. 2 Shingling, 4 in bit, w't per doz 26 lbs	"		8 50
No. 3 Shingling, 4½ in bit, w't per doz 31 lbs	"		9 00
No. 1 Claw, 3½ in bit, w't per doz 22 lbs	"		9 00
No. 2 Claw, 4 in bit, w't per doz 24 lbs	"		9 50
No. 3 Claw, 4½ in bit, w't per doz 28 lbs	"		10.00

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.

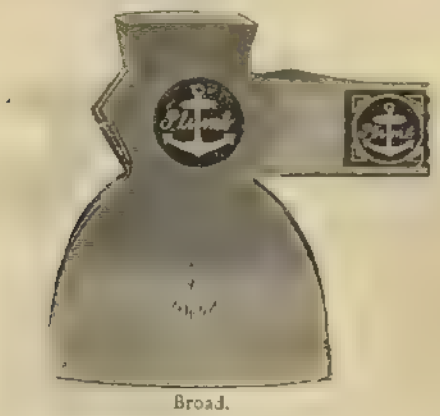


Half. Lath

Forged Steel, Gold Bronzed Body, Polished Head and Bit, with White Hickory Handle.

No. 1—Half, 3¼ in. bit, w't per doz. 21 lbs	per dozen	$	8 50
No. 2—Half, 3⅝ in bit, w't per doz. 26 lbs	"		9.00
No. 0—Lath, 2 in. bit, w't per doz. 16 lbs	"		7 50
No 1 Lath, 2¼ in bit, w't per doz 21 lbs	"		8 00
No 2 Lath, 2½ in bit w't per doz 24 lbs	"		8 50
No. 3—Lath, 2¾ in bit w't per doz 24 lbs	"		9.00

HALF DOZEN IN A BOX. SIX DOZEN IN A CASE.



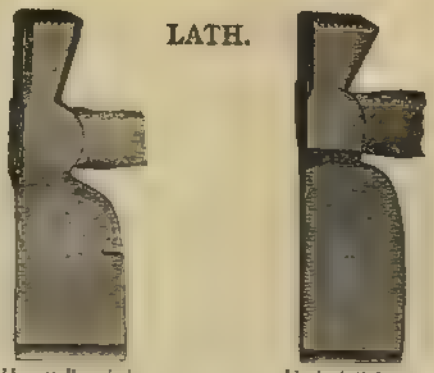
Broad.

Forged Steel, Gold Bronzed Body, Polished Head and Bit, with White Hickory Handle.

	PER DOZEN.
No. 2—Broad, 4½ in. bit, single bevel, w't per doz. 28 lbs	$11 50
No. 3—Broad, 5 in bit, single bevel, w't per doz. 35 lbs	13.00
No. 4—Broad, 5½ in. bit, single bevel, w't per doz. 38 lbs	14.50
No. 5—Broad, 6 in. bit, single bevel, w't per doz. 44 lbs	16 50
No. 6—Broad, 6½ in. bit, single bevel, w't per doz. 50 lbs	18 00

HALF DOZEN IN A BOX. THREE DOZEN IN A CASE.

LATH.



Henry Beneke's. Underhill Bros.

Cast Steel, Full Polished and Etched with White Hickory Handle.

No. 90—HENRY BENEKE'S, 2¼ in. bit, 1¼×1¾ in. head, 9 row, 81 points, w't per doz 16 lbs ..... per dozen $16 50

No. 60—UNDERHILL BROS BOSTON STAR, 2 in. bit, 1⅛×1⅞ in. head, 8 row, 64 points, regular pattern, w't per doz. 15 lbs., per dozen 30.00

No. 80—UNDERHILL BROS. BOSTON STAR, 2 in. bit, 1⅛×1⅞ in. head, 9 row, 81 points, Chicago pattern, w't per doz. 16 lbs., per dozen 32 00

No. 75—UNDERHILL BROS. BOSTON STAR, 2 in. bit, 1⅛×1⅞ in. head, 10 row, 100 points, St. Louis pattern, w't per doz, 17 lbs ..... per dozen 34.00

HALF DOZEN IN A BOX.

MISCELLANEOUS.

Half. Claw.

GERMANTOWN, Forged Steel, Polished and Copper Bronzed, Octagon Neck.

	PER DOZEN
No. 318—Half, 3½ in. bit, *smooth* head, w't per doz. 26 lbs	$17.00
No. 318½—Half, 3¾ in. bit, *smooth* head, w't per doz. 29 lbs	18.00
No. 0318—Half, 3½ in. bit, *scored* head, w't per doz. 26 lbs	18.00
No. 0318½—Half, 3¾ in. bit, *scored* head, w't per doz. 29 lbs	19.00

No. 200—BLACK EAGLE, claw, all steel, riveted, 3½ in. bit, hollow steel handle, oil tempered blade, black enameled body, polished head and bit, w't per doz. 19 lbs ..... per dozen 6.00

HALF DOZEN IN A BOX.

No. 17. No. 16.

No. 17—DUFFY'S BARREL, 2¼ in. bit, cast steel, scored head, with claw, steel tang, securely riveted to handle, head and ferrule nickel plated and polished, w't per doz. 20 lbs ..... per dozen $33.00

No. 16—PLUMB'S WAREHOUSE, 3⅛ in. polished bit, scored head, forged steel body and handle with claw, painted black, w't per doz. 37 lbs ..... per dozen 17.00

HALF DOZEN IN A BOX

HATCHETS.

MARICOPA.

Shingling.

Half

Forged Steel, Fire Bronzed Body, Polished Head and Bit, with Hickory Handle.

No. 1—Shingling,	3½ in. bit, w't per doz. 20 lbs	per dozen	$ 8 00
No. 2—Shingling,	4 in. bit, w't per doz. 26 lbs	"	8 50
No. 1—Half,	3¼ in. bit, w't per doz. 21 lbs	"	8 50
No. 2—Half,	3½ in. bit, w't per doz. 26 lbs	"	9 00

HALF DOZEN IN A BOX, SIX DOZEN IN A CASE.

Lath.

Claw.

Forged Steel, Fire Bronzed Body, Polished Head and Bit, with Hickory Handle.

No. 1—Lath,	2¼ in. bit, w't per doz 10 lbs	per dozen	$8 00
No. 2—Lath,	2½ in. bit, w't per doz. 21 lbs	"	8 50
No. 1—Claw,	3½ in. bit, w't per doz. 22 lbs	"	9 00
No. 2—Claw,	4 in. bit, w't per doz. 24 lbs	"	9 50
No. 3—Claw,	4½ in. bit, w't per doz. 29 lbs	"	10 00

HALF DOZEN IN A BOX SIX DOZEN IN A CASE.

Forged Steel, Fire Bronzed Body, Polished Head and Bit, with Hickory Handle.

No. 2—Broad,	4½ in. bit, w't per doz. 28 lbs	per dozen	$11.50
No. 3—Broad,	5 in. bit, w't per doz. 35 lbs	"	13.00
No. 4—Broad	5½ in. bit, w't per doz. 38 lbs	"	14 50
No. 5—Broad,	6 in. bit, w't per doz. 44 lbs	"	16 50

HALF DOZEN IN A BOX, THREE DOZEN IN A CASE.

"CRUSO."

Shingling.

Half.

Converted Cast Steel, Silver Bronzed Body, Polished Head and Bit, with Hickory Handle.

No. 1—Shingling,	3½ in. bit, w't per doz. 20 lbs	per dozen	$ 8 00
No. 2—Shingling,	4 in. bit, w't per doz. 26 lbs	"	8 50
No. 3—Shingling,	4½ in. bit, w't per doz. 31 lbs	"	9 00
No. 1—Half,	3¼ in. bit, w't per doz. 21 lbs	"	8 50
No. 2—Half,	3½ in. bit, w't per doz 26 lbs	"	9.00

HALF DOZEN IN A BOX, SIX DOZEN IN A CASE.

Claw

Converted Cast Steel, Silver Bronzed Body, Polished Head and Bit, with Hickory Handle.

No. 1—Claw,	3½ in. bit, w't per doz. 22 lbs	per dozen	$ 9.00
No. 2—Claw,	4 in. bit, w't per doz. 24 lbs	"	9.50
No. 3—Claw,	4½ in. bit, w't per doz. 29 lbs	"	10.00

HALF DOZEN IN A BOX, SIX DOZEN IN A CASE.

CAST IRON.

Shingling.

Claw.

Cast Iron, Bronzed Body, Polished Head and Bit, with Hickory Handle.

No. 1—Shingling,	3 in. bit, w't per doz. 10 lbs	per dozen	$ 2 00
No. 2—Shingling,	3½ in. bit, w't per doz. 15 lbs	"	2 50
No. 1—Claw,	3 in. bit, w't per doz. 14 lbs	"	3 00
No. 2—Claw,	3½ in. bit, w't per doz. 18 lbs	"	3.50

HALF DOZEN IN A BOX, TWELVE DOZEN IN A CASE

MAULS, HAMMERS AND SLEDGES.

SORTING HAMMERS.

Solid Forged Steel, Full Polished.

Weights	1½	2 lbs
Per dozen	$11 70	15 60

MASONS' HAMMERS.

Solid Forged Steel, Polished Ends, Axe Finish.

Weights	3	3½	4	4½ lbs.
Per dozen	$19.80	23.10	26.40	29.70
Weights	5	5½	6	7 lbs.
Per dozen	$30 00	33 00	36 00	42 00
Weights		8	9	10 lbs.
Per dozen		$48 00	54.00	60 00

SPALLING HAMMERS.

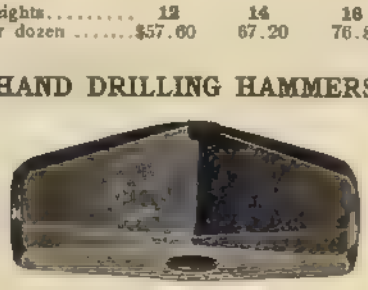
Solid Forged Steel, Single Face, Oil Finish, Polished Face.

Weights	8	10	12 lbs.
Per dozen	$38.40	48.00	57.60
Weights		14	16 lbs.
Per dozen		$67.20	76 80

Solid Forged Steel, Double Face, Oil Finish, Polished Faces.

Weights	4	5	6 lbs.
Per dozen	$24 00	24.00	28.80
Weights	7	8	10 lbs.
Per dozen	$33.60	38 40	48.00
Weights	12	14	16 lbs.
Per dozen	$57.60	67.20	76.80

HAND DRILLING HAMMERS.



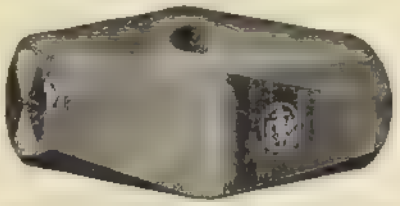
CALIFORNIA PATTERN, Solid Forged Steel, Polished Faces, Oil Finish.

Weights	3	3½	4	4½ lbs.
Per dozen	$18 00	21 00	24.00	27 00

STRIKING HAMMERS.

REGULAR OR NEVADA PATTERN, Solid Forged Steel, Polished Faces, Oil Finish.

Weights	3	3½	4	4½ lbs.
Per dozen	$14 40	16.80	19.20	21.60
Weights	5	6	7	8 lbs.
Per dozen	$18 00	21 60	25.20	28.80
Weights	9	10	12	14 lbs.
Per dozen	$32.40	36 00	43 20	50 40



OREGON PATTERN, Solid Forged Steel, Polished Faces, Oil Finish.

Weights	4	5	6	7 lbs.
Per dozen	$19 20	18.00	21 60	25 20
Weights	8	9	10	12 lbs.
Per dozen	$28 80	32 40	36 00	43 20

STONE SLEDGES.

Solid Forged Steel, Polished Face, Oil Finish.

Weights	6	7	8 lbs.
Per dozen	$21.60	25.20	28 80
Weights	10	12	14 lbs.
Per dozen	$36 00	43 20	50.40
Weights	16	18	20 lbs.
Per dozen	$57 60	64 80	72 00

RAILROAD MAULS.

Solid Forged Steel, Polished Faces, Oil Finish.

Weights	6	8	10 lbs.
Per dozen	$21.60	28.80	36.00

SHIP OR TOP MAULS.

Solid Forged Steel, Polished Ends, Axe Finish.

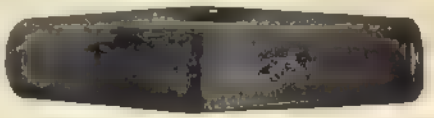
Weights	4 ½	5	5½ lbs.
Per dozen	$22 68	25.20	27 72
Weights		6	7 lbs.
Per dozen		$30 24	35 28

BLACKSMITHS' HAND HAMMERS.

ENGLISH PATTERN, Solid Forged Steel, Polished Face, Oil Finish.

Weights	1½	2	2½	3 lbs.
Per dozen	$9 00	12 00	15.00	14.40

COAL MINERS' SLEDGES.



Solid Forged Steel, Polished Faces, Oil Finish.

Weights	5	6	7	8 lbs.
Per dozen	$18 00	21.60	25.20	28 80

WOOD CHOPPERS' MAULS.

OREGON PATTERN, Oval Eye, Solid Forged Steel, Polished Face, Oil Finish. (Use with Sledge Handle.)

Weights	6	7	8 lbs
Per dozen	$25.92	30.24	34 56
Weights	9	10	12 lbs.
Per dozen	$38 88	43.20	51 84

OREGON PATTERN, Axe Eye, Solid Forged Steel, Polished Face, Oil Finish. (Use with D.B. Axle Handle.)

Weights	6	7	8	9 lbs.
Per dozen	$25.92	30.24	34 56	38.88

BLACKSMITHS' SLEDGES.

Solid Forged Steel, Cross Pein, Polished Face and Pein, Oil Finish.

Weights	4	5	6 lbs.
Per dozen	$19 20	18.60	21.60
Weights	7	8	10 lbs.
Per dozen	$25 20	28 80	36.00
Weights	12	14	16 lbs.
Per dozen	$43 20	50 40	57 60

Solid Forged Steel, Double Face, Oil Finish, Polished Faces.

Weights	4	5	6 lbs.
Per dozen	$19.20	18.00	21.60
Weights	7	8	10 lbs.
Per dozen	$25.20	28.80	36.00
Weights	12	14	16 lbs.
Per dozen	$43 20	50.40	57.60

WEDGES, POST MAULS, CROW BARS, ETC.

WOOD CHOPPERS' WEDGES.

HIBBARD OIL FINISH, Forged Steel, Regular Fluted Pattern.

Weights	3	3½	4	4½ lbs.
Per dozen	$3 24	3 78	4.32	4.86
Weights	5	5½	6	6½ lbs.
Per dozen	$5 40	5 94	6 48	7 02
Weights	7	7½	8 lbs.	
Per dozen	$7 56	8.10	8.64	

IN BULK

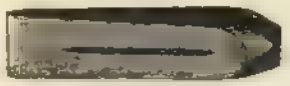
No. 10—Assorted, 3½ to 5 lbs. . per box $6.00

ONE DOZEN, ASSORTED, IN A BOX. WE DO NOT BREAK BOXES.

HIBBARD AXE FINISH, Forged Steel, Regular Fluted Pattern.

No. 20—Assorted, 3½ to 5 lbs . per box $7.50

ONE DOZEN, ASSORTED, IN A BOX. WE DO NOT BREAK BOXES.



TRUCKEE PATTERN, Forged Steel, Oil Finish.

Weights	3	3½	4	4½	5 lbs.
Per dozen	$3 78	4.41	5.04	5.67	6 30
Weights	5½	6	6½	7	7½ lbs.
Per dozen	$6 93	7 56	8.19	8 82	9 45
Weights	8	9	10 lbs.		
Per dozen	$10.08	11.34	12 60		

IN BULK

LAKE SUPERIOR PATTERN, Forged Steel, Oil Finish.

Weights	5	5½	6	7	8 lbs.
Per dozen	$7.20	7.92	8 64	10.08	11.52

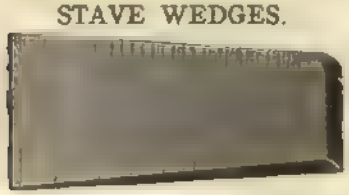
IN BULK

OREGON PATTERN, Forged Steel, Oil Finish.

Weights	3	4	4½	5 lbs.
Per dozen	$4 32	5 76	6 48	7 20
Weights	5½	6	7	8 lbs.
Per dozen	$7 92	8 64	10 08	11.52

IN BULK.

STAVE WEDGES.

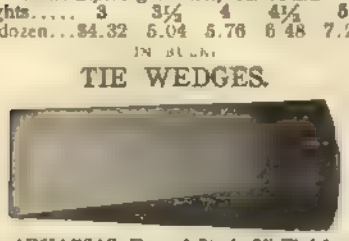


OZARK, Forged Steel, Oil Finish.

Weights	3	3½	4	4½	5 lbs.
Per dozen	$4.32	5.04	5.76	6 48	7.20

IN BULK

TIE WEDGES.

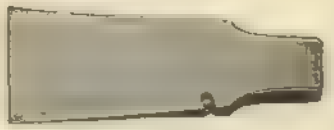


ARKANSAS, Forged Steel, Oil Finish

Weights	3	3½	4	4½	5 lbs.
Per dozen	$4.14	4.83	5.52	6.21	6.90

IN BULK.

SAW WEDGES.

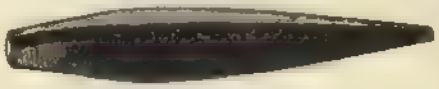


Forged Steel, Improved Pattern, Oil Finish.

Weights	1¾	2	2½ lbs.
Per dozen	$6.30	7.20	9.00

IN BULK.

COAL MINERS' WEDGES.



PLUMB'S, Oil Finish, Solid Forged Steel, Alton Pattern.

No. 1—Weights.	1½	1¾	2	2½	3 lbs.
Per dozen	$4 50	5.25	6.00	7 50	9.00

BEALL BROS.', Black Finish, Solid Forged Steel, Alton Pattern.

No. 2—Weights	1½	1¾	2	2½	3 lbs.
Per dozen	$5.40	6.30	7.20	9.00	10.80

BEALL BROS.', Black Finish, Solid Forged Steel, Missouri Pattern.

No. 3—Weights.	1½	1¾	2 lbs.
Per dozen	$5 40	6.30	7.20

AXE WEDGES.

No. 1—Malleable iron, with screw, w't per doz. 11¼ lbs . . . . . per dozen $1 00

No. 2—Malleable iron, plain, w't per doz. 2¾ lbs. . . . . per dozen $1.10

BEETLE RINGS.

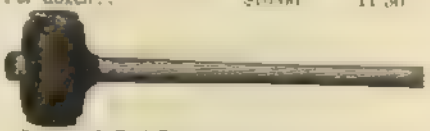
Wrought Iron, Self Colored.

No. 10—Diameter	5	5½	6 in.
Weights	18	18½	21 lbs.
Per dozen	$23.76	24 42	27.72

POST MAULS.

Japanned Cast Iron, Hickory Handle.

Weight (without handle)	10	13	16 lbs.
W't per doz with handles	135	171	207 lbs.
Per dozen	$6.75	7.50	9.00
Weight (without handle)	18		20 lbs.
W't per doz. with handles	231		267 lbs.
Per dozen	$10.00		11 50



Japanned Cast Iron, Wood Faces, Hickory Handle.

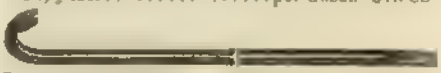
Weight (without handle)	10	12	14 lbs.
W't per doz. with handles	114	150	190 lbs.
Per dozen	$9 00	11 00	11 00

CARPENTERS' BARS.

Pinch Point, Forged Steel, Oil Finish.

No. 7—Sizes	20x¾	24x⅞	28x1 in.
W't per doz	30	49½	76 lbs
Per dozen	$6.00	6.00	7 00

No. 3—Claw end, forged steel, oil finish, 30×⅞ in., w't per doz. about 64½ lbs. . . . . per dozen $10 00

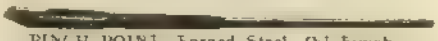


Gooseneck, ¾ in. Octagon Tool Steel, Oil Finish, Hardened Points.

Nos.	6	5	4
Length	20	24	30 in.
W't per doz	36	39½	51 lbs.
Per dozen	$12 00	13.50	15.00

Just the thing for wrecking old buildings. The claw end will draw any size nails.

CROW BARS.



PINCH POINT, Forged Steel, Oil Finish.

Weights	10	12	14 lbs.
Per dozen	$8 40	10 08	11 76
Weights	16	18	20 lbs.
Per dozen	$13 44	15.12	16.80

WEDGE POINT, Forged Steel, Oil Finish.

Weights	10	12	14 lbs.
Per dozen	$8.40	10 08	11.76
Weights	16	18	20 lbs.
Per dozen	$13.44	15.12	16 80

CAR MOVERS.

No. 1—SAMSON, malleable iron, refined crucible tool steel and second growth hard maple, w't 16 lbs., complete with one extra steel spur ⅛ in. square by ⅜ in long. . . . . each $5 00

The Samson Car Movers are each guaranteed to work under any brake and in all positions under car-wheels where it is possible for any other mover to work; to move a loaded or empty car on a level or inclined track, on a straight or curved track, on a dry, icy or greasy track, faster, easier and further to each stroke of the handle than any other make of movers on the market.

SEED SOWERS, CORN DRYERS AND SHELLERS.

SEED SOWERS.

"REV-O-NOC."

No. 14 REVONOC—heavy duck hopper, ball bearing, 27 gauge iron fan wings riveted to solid cast base, malleable iron fly wheel and crank, w't per doz 65 lbs.....per dozen $24 00

Will sow wheat, rye, oats, rice, flax, millet, turnip seed, clover seed, grass seed, in fact all kinds of seed, broadcast, also plaster, fertiliser, salt, ashes, etc.

ONE IN BOX, ONE DOZEN IN A CRATE.

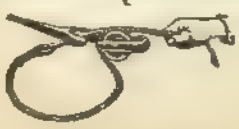
No. 12—LITTLE WONDER, heavy duck hopper, capacity half bushel, heavy sheet steel feed plate and agitating device, with spring steel adjustments, w't per doz. 50 lbs.....per dozen $20 00

Simple, strong and practical. Especially recommended for grass seed.

No. 10—LIGHTNING, large canvas bag, with straps to go over shoulders, tin tube in three sections, of a graduating diam., length 22 in., the larger end fits into a stub joint which is securely fastened to the bag and in which is a gauge to regulate the quantity of seed sown to a certain area, w't per doz. 9 lbs.....per dozen $16.00

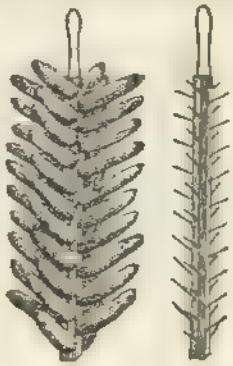
Will sow sixty acres of clover, timothy, millet, etc. per day, spreading the seed evenly from 30 to 40 feet. The wind has no chance to blow seed into bunches before it strikes the ground.

FODDER SQUEEZERS.



No. 4—BLAIR'S, malleable iron frame and pin, with gray iron wheel, w't per doz. 7 lbs.....per dozen $4 50

SEED CORN DRYERS.



Loaded. Unloaded.

No. 25—WENZELMAN'S, 3 ft. wood upright with wire hanger and stiff but light galvanized steel wire pegs for holding 44 ears of corn; in set of 14 uprights for holding seed to cover 40 acres, w't per doz. sets 16 lbs ,★ per dozen sets.....$28 00

The pegs are far enough apart so that the ears do not touch, thus assuring perfect air circulation.

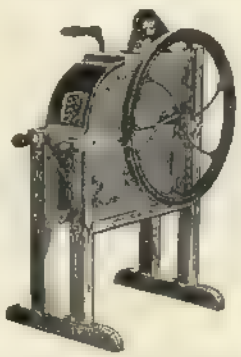
★*For factory shipment only.*

ROPE CLAMPS.

No. 1—WERUM'S, malleable iron, japanned, w't per doz. 2½ lbs per dozen $1 40

ONE DOZEN IN A BOX

CORN SHELLERS.



EAGLE, Hardwood Frame, Painted, Striped and Varnished, Heavy Wrought Spoke Balance Wheel, Light Running Inside Gearing, and Adjustable Spring to Receive and Shell any Size Ear of Corn, Height 3½ ft., Length 2½ ft., Width 1 ft. 7 in., 26 in. Fly Wheel.

No. 3 —*Without* fan or feed-table, w't each 131 lbs .....per dozen $132 00

No. 3T —*Without* fan, *with* feed table, w t each 139 lbs.....per dozen 138 00

No. 3F —*With* fan, *without* feed table, w't each 138 lbs.....per dozen 138 00

No. 3FT—*With* fan and feed table, w't each 166 lbs. .....per dozen 144 00

ONE IN A CRATE. PART K D.

CORN SHELLERS.

No. 10—PLYMOUTH ROCK, 10 in. sheller disc or wheel with projecting teeth, spring hopper, adjustable for different sizes of ears, malleable iron frame, disc, crank, etc., heavy steel hopper spring, long axle bearing and hook, 7 in. crank with wood grip, complete with popcorn attachment, w't per doz. 150 lbs.....per dozen $16 00

The tension of the hopper spring allows the hopper to expand and contract according to the size of the ear. At the outlet of the hopper a flange holds the ear close to the shelling disc or wheel, thus assuring a thorough shelling of the ear.

HALF DOZEN IN A CRATE.

No. 1903—BLACKHAWK, 8¼ in. sheller wheel or disc, with spur teeth, long chilled iron bearings, adjustable hopper spring, sure regulating device, will shell all sizes of ears, fastens to side of box or bin by means of two clamps with winged nuts, w't per doz. 228 lbs.,★.....per dozen $40.00

★*Factory shipment only*

HALF DOZEN IN A BARREL.

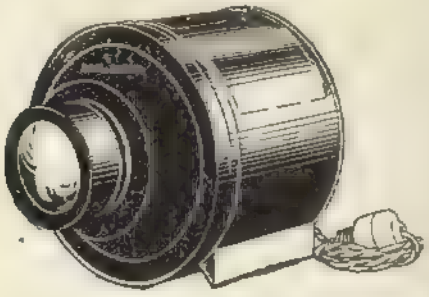
No. 12—RED CHIEF, 7¼ in. sheller wheel or disc, with projecting teeth, malleable iron frame and hopper, 9½ in. crank, with wood grip, cold rolled steel axle with long bearing, hopper is adjustable to any size ear, fastens to side of box or bin by means of two clamps, w't per doz. 138 lbs.....per dozen $40.00

HALF DOZEN IN A CRATE

POST CARD PROJECTORS.

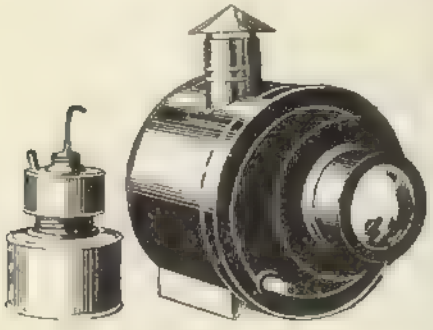
POST CARD PROJECTORS.

The Post Card Projector is one of the latest productions. It will project on a screen, in natural colors, post cards, photos and other opaques *greatly magnified*. The image is clear and sharp to the edge. It is fitted with electric lamps or gas burners and connections ready to attach to any light fixture. Also with acetylene attachment for homes without either electric or gas fixtures. The lenses are special double convex, finest quality. The finish is black enamel decorated. The price is graded on quality of lenses, candle-power and type of lamps and equipment.



No. 107—Electric, 8⅞x8¼x8¼ in., fitted to use Tungsten clear globe 40 watt lamps in voltage to suit individual circuit, complete with connections, w't 6 lbs. . . . . each $4 00

Unless otherwise specified electric instruments are fitted with lamps suitable for 104 to 115 volt circuits for alternating and direct current.



No. A108—Acetylene gas, 11½x8½x8¼ in., complete with generator, w't 6 lbs., each $4 00

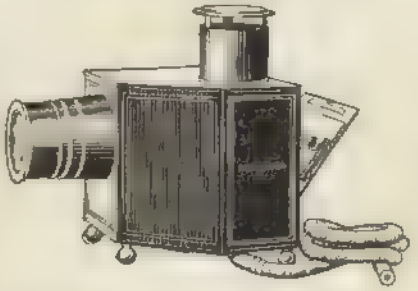
These instruments are essentially for home use and are practical and fascinating in their field. Where directions are carefully followed highly satisfactory results are secured.

Excellent results can be obtained at various distances up to fifteen or eighteen feet from the screen, the size of, definition varying up to five or six and one-half feet in diameter, although, of course, results with the cheaper projectors are not equal to those secured with the higher priced ones.

Best results when operating the cheaper instruments are secured at a distance not to exceed eight or ten feet and at this distance the definition will naturally be smaller than when operating the higher priced machines.

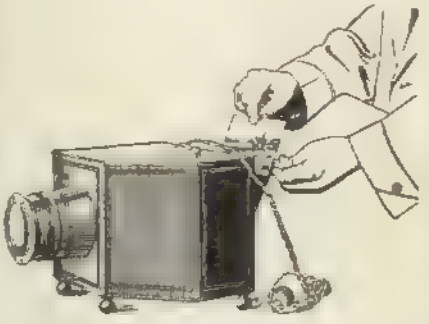
The room should always be entirely dark when operating

POST CARD PROJECTORS.



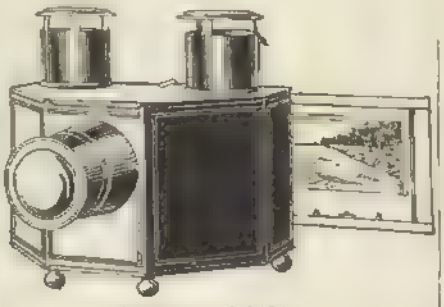
No. 106—Gas, 11¼x9¾x8½ in., high C. P. burner, Buckeye mantle and equipment, including 6 ft. of hose, w't 8 lbs . . . . . each $6.65

No. A106—With acetylene attachments, improved generator, otherwise the same as No. 106, w't 9 lbs. . . . . each 6 65



No. 105—Electric, 11¼x9¾x8½ in., fitted to use Tungsten clear globe 40 watt lamps in voltage to suit individual circuit, complete with connections, w't 8 lbs . . . . . each $6 65

Unless otherwise specified electric instruments are fitted with lamps suitable for 104 to 115 volt circuits for alternating and direct current.



Nos. 104 and A104.

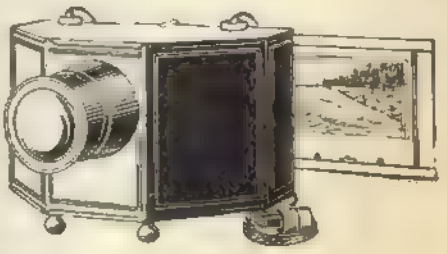
No. 103—Electric, 11¼x13x8½ in., fitted to use Tungsten clear globe 40 watt lamps in voltage to suit individual circuit, complete with connections, w't 10 lbs. . . . . each $10 00

No. 104—Gas, 11¼x13x8½ in., complete with two high C. P. burners, Buckeye mantles and equipment, including 6 ft. of hose, w't 10 lbs each 10 00

No. A104—With acetylene attachments improved generator, otherwise the same as No. 104, w't 11 lbs . . each 10 00

Unless otherwise specified electric instruments are fitted with lamps suitable for 104 to 115 volt circuits for alternating and direct current.

POST CARD PROJECTORS.



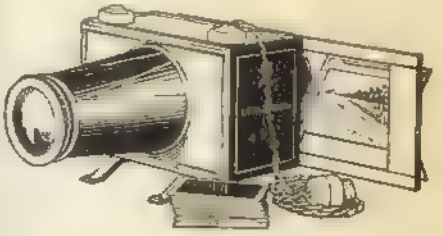
No. 101

No. 101—Electric, 12x15¼x8½ in., complete with two high C. P. electric lamps, w't 11 lbs. . . . . each $13 35

No. 102—Gas, 12x15¼x8½ in., complete with two high C. P. burners, Buckeye mantles and equipment, including 6 ft. hose, w't 11 lbs. each 13 35

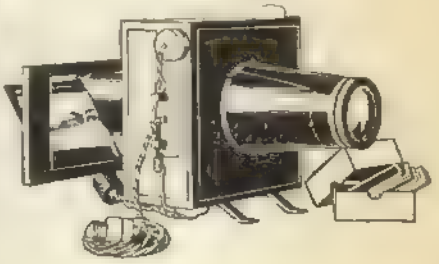
No. A102—With acetylene attachment, each. 13 35

Unless otherwise specified electric instruments are fitted with lamps suitable for 104 to 115 volt circuits for alternating and direct current.



No. 33—Electric, 18½x10¾x9 in., fitted to use Tungsten clear globes 40 watt lamps in voltage to suit individual circuit, complete with two high C. P. electric lamps w't 18 lbs . . . each $20 00

Unless otherwise specified electric instruments are fitted with lamps suitable for 104 to 115 volt circuits for alternating and direct current.



No. 31—Electric, 21x11¾x12⅞ in., fitted to use Tungsten clear globes 40 watt lamps in voltage to suit individual circuit, complete with four high C. P. electric lamps, w't 20 lbs. . each $26 65

Unless otherwise specified electric instruments are fitted with lamps suitable for 104 to 115 volt circuits for alternating and direct current.

HANDLED AXES.

CAMP FIRE, SINGLE BIT.

Forged Steel Body, Painted Red and Labeled, Polished Crucible Steel Bit, with Pressed Bevels, Blue Lacquered. Fitted with Good Quality Oval Hickory Handle. One of Our Best Sellers

No. J101—Camp Fire, Michigan Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½	4 to 5
W't per doz. handled	65	70	75 lbs
Per dozen	$14.50	15 00	15 50

No. J102—Camp Fire, Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
W't per doz. handles	65	70	75 lbs
Per dozen	$14 50	15 00	15 50

PRIDE OF THE FOREST, SINGLE BIT.

Forged Steel Body, Crucible Steel Bit, Black Forge Finish. Fitted with Good Quality Oval Ebonized Hickory Handle. A Surprising Value at the Price.

No. S91—Pride of the Forest, Michigan Pattern.

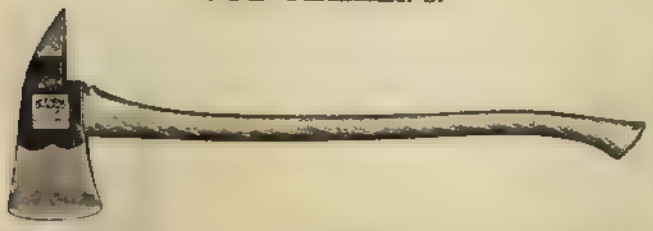
Weights, Assorted, lbs	3 to 4	3½ to 4½	4 to 5
W't per doz. handled	65	70	75 lbs.
Per dozen	$13.00	13.50	14.00

No. S92—Pride of the Forest, Yankee Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½	4 to 5
W't per doz. handled	65	70	75 lbs
Per dozen	$13 00	13.50	14.00

ONE DOZEN IN A BOX, HANDLES BURLAPPED

OVB FIREMEN'S.

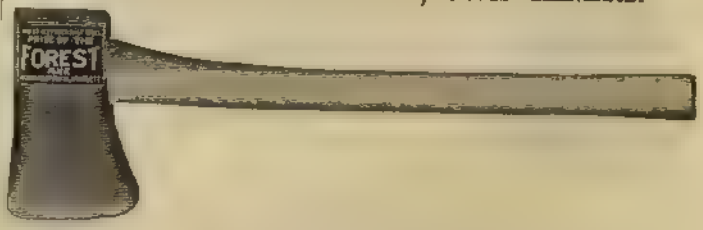


No. 7 OVB—With Pick Point, Forged Steel, Gold Bronzed Body and Point, Extra Quality Crucible Tool Steel Bit, Polished, Carefully Hand-Tempered. Fitted with Extra Quality Oval White Hickory Handle.

Weight, without handle, lbs	4	5	6
W't per doz., handled	54	64	74 lbs
Per dozen	$25 00	27.50	30 00

HALF DOZEN IN A BOX

PRIDE OF THE FOREST, COAL MINERS.



No. W92—Pride of the Forest, Yankee Pattern, Black Forge Finish, Fitted with Good Quality Short (26 inch) Oval Straight Miners' Handle.

Weights, Assorted, lbs	3 to 4	3½ to 4½
Weight, per doz., handled	63	68 lbs.
Per dozen	$14.00	14.50

ONE DOZEN IN A BOX.

BOYS'.

"Our Very Best." Camp Fire. Cruso.

Solid Forged Crucible Steel, with 28 in. Oval Hickory Handles.

No. 20 OVB—Full polished and etched, 2¼ lbs., extra quality white handle ... per dozen $10 00

No. 24 OVB—Bronzed, with polished bit, 2¼ lbs., extra quality white handle ... per dozen 9.00

No. 2—Camp Fire, body painted red, polished bit, pressed blue bevels, 2¼ lbs., good quality handle ... per dozen 8.00

No. 12—Cruso, bronzed, with polished bit, 2¼ lbs., medium quality handle ... per dozen 7.00

ONE DOZEN OR ONE-HALF DOZEN IN A BOX, WEIGHT PER DOZEN, ABOUT 40 LBS

HUNTERS' AXES OR CAMP HATCHETS.

'Our Very Best." "Rev-o-noc."

Solid Forged Crucible Steel, with 14 in. Oval Extra Quality White Hickory Handles.

No. 22¼ OVB—Full polished and etched, 1¼ lb., w't per doz 22 lbs ... per dozen $9 00

No. 22½ OVB—Bronzed with polished bit, 1¼ lbs., w't per doz. 22 lbs ... per dozen 8.00

No. 23 REVONOC—Black finish, 1¼ lbs., w't per doz. 22 lbs., per dozen ... 8.00

ONE-HALF DOZEN IN A BOX.

UNHANDLED AXES.

No. 82

PINE TREE, SINGLE BIT.

Forged Steel Body, Painted Black, Crucible Steel Polished Bit, Well Tempered and Sharpened.

No. 82—Pine Tree Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½
W't per doz.	48	54 lbs.
Per dozen	$9.50	10.00

Weights, Assorted, lbs.	4 to 5
W't per doz.	59 lbs
Per dozen	$10.50

ONE DOZEN IN A CASE.

No. 91.

PRIDE OF THE FOREST SINGLE BIT.

Forged Steel Body, Crucible Steel Bit, Black Forge Finish, Tempered and Sharpened. A Very Low Priced Axe, But Serviceable for All but Very Exacting Work.

No. 91—Pride of the Forest Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
W't per doz.	49	54	59 lbs.
Per dozen	$9 00	9 50	10.00

No. 92—Pride of the Forest Yankee Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
W't per doz.	49	54	59 lbs.
Per dozen	$9 00	9 50	10 00

ONE DOZEN IN A CASE.

No. 71.

ROBERT MANN AND LIPPINCOTT, SINGLE BIT.

Forged Steel Gold Bronzed Body, Crucible Steel Polished Bits, Standard Quality and Finish.

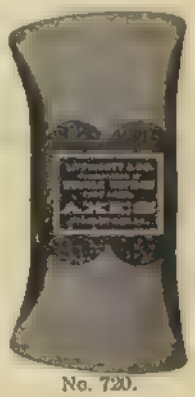
No. 71—Robert Mann Michigan Pattern.

Weights, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
W't per doz.	49	54	59 lbs.
Per dozen	$11.00	11.50	12.00

No. 72—Lippincott Yankee Pattern.

Weights, Assorted, lbs	3 to 4	3½ to 4½	4 to 5	4½ to 5½
W't per doz.	49	54	59	64 lbs
Per dozen	$11.00	11.50	12.00	12.50

ONE DOZEN IN A CASE.



No. 720.

LIPPINCOTT, DOUBLE BIT.

Forged Steel Gold Bronzed Body, Crucible Steel Polished Bits, Standard Quality and Finish.

No. 720—Lippincott Western Pattern.

Weights, Assorted, lbs.	3½ to 4½	4 to 5
W't per doz.	54	59 lbs.
Per dozen	$15.50	16.00

ONE DOZEN IN A CASE.

HANDLED AXES.

Any of the Above Axes May be Fitted with any of the Following Handles By Our Expert Workmen. Our Handles are Specially Graded and Gauged for the Purpose, and we Guarantee Correct "Hang" and Secure Wedging. We Strongly Recommend that all Axes be Purchased Handled, Ready for Use.

SINGLE BIT.

Add the Following Extras to the Prices of Unhandled Single Bit Axes Above.

No. C—With [illegible] regular oval handles fitted, extra per dozen	$7 50
No. D—With [illegible] regular octagon handles fitted, extra per dozen	7 50
No. CC—With [illegible] slim lumberrunners handles fitted, extra per dozen	7 50
No. DD—With [illegible] oak regular oval handles fitted extra per dozen	5 50
No. E—With Hib-Spe-Bar regular oval handles fitted " "	5 50
No. F—With Hib-Spe-Bar regular octagon handles fitted " "	5 50
No. EE—With Hib-Spe-Bar slim lumberrunners handles fitted, extra per dozen	5 50
No. FF—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50
No. J—With Ha-noy regular oval handles fitted..extra per dozen	4 00
No. K—With Cruso regular oval handles fitted... " "	3.50

DOUBLE BIT.

Add the Following Extras to the Prices of Unhandled Double Bit Axes Above

No. L—With [illegible] regular oval handles fitted, extra per dozen	$7 50
No. LL—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	5 50
No. P—With Hib-Spe-Bar regular oval handles fitted extra per doz.	5 50
No. N—With Hib-Spe-Bar regular octagon handles fitted " "	5 50
No. PP—With Hib-Spe-Bar oak regular oval handles fitted, extra per dozen	4 50
No. R—With Ha-noy regular oval handles fitted extra per dozen	4 00

Our handled axes have the heads securely boxed, with the handles projecting and fully burlapped. Handled axes weigh about 12 lbs. per dozen more than the corresponding axes unhandled. In ordering handled axes, always specify the brand that you want of the axe and prefix to the size number the letter designating the handle, thus: "1 doz. No. R720 Lippincott axes, 4 to 5 lbs.," which shows that No. 720 Lippincott Western Pattern D. B. axes are desired, fitted with No. R Ha-noy oval handles.

VULCANIZERS, VELOCIPEDES, ETC.

ADJUSTABLE SECTIONAL VULCANIZERS.

No. 1A—MILLER'S, automobile, will repair all sizes and makes of casings from 2½ to 4 in., and a section 20 in. long in order to repair the different makes of casings, special beaded strips are furnished with each outfit, also steam gauge, pop valve, clamp base globe and fittings, w't 200 lbs. ★.....each $60 00

No. 1M—For motorcycle tires, otherwise same as No. 1A★.....each 25 00

No. 1B—For Bicycle tires, otherwise same as No. 2A★.....each 15 00

No. 2A—MILLER'S will repair casings from 4 to 5½ in. and a section 22 in. long, otherwise same as No. 1A, w't 250 lbs ★.....each 60 00

No. 2M—For motorcycle tires, otherwise same as No. 2A★.....each 25 00

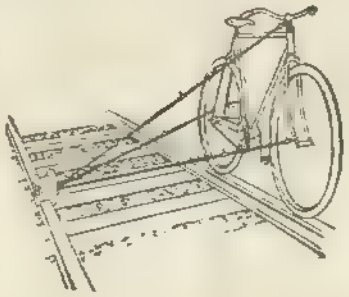
No. 2B—For bicycle tires, otherwise same as No. 2A★.....each 15 00

The above vulcanizers are steam jacketed being cast in one piece, obviating the possibility of leaks. Either of these vulcanizers will repair inner tubes satisfactorily.

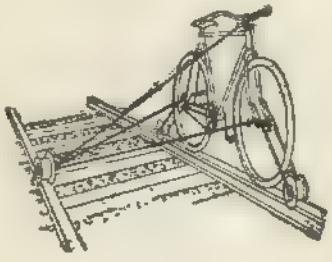
KETTLE VULCANIZERS.

No. 3—MILLER'S, cast iron, heavy hinged lid and counter-balanced weight to assist in raising the lid; when closed the lid is held in place by eighteen 1¼ X5 in., bolts, the bolts fit in a slot which allows one to remove them by a half turn of the nut; capacity five to eight tires at one time, and will take up to 40 in.; furnished complete with bolts, pop valve, steam gauge, wrench and packing, w't 2000 lbs.★.....each $200 00

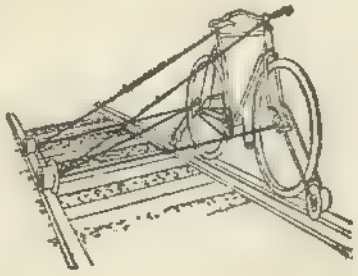
RAILROAD BICYCLE ATTACHMENTS.



No. 1—Double-flanged wheel, connected with bicycle by rigid triangle of 3 braces, serves to guide the bicycle with perfect success, it is easily attached and detached takes but small amount of room when telescoped for carrying on wheel, w't 10¼ lbs.....each $12 00



No. 2—Double flanged wheels, constructed with 2 auxiliary wheels, which may be raised and fastened, when riding on street or road, and the rest of the attachment may be telescoped and carried, w't 20 lbs.....each $15 00



No. 3—Fitted with four wheels (inside flange) and strong braces, will carry very heavy loads, any bicycle will answer with this attachment, w't 30 lbs.....each $20 00

★*FOR SHIPMENT FROM FACTORY ONLY.*

STEEL VELOCIPEDES.

Finished Black, with Steel Tires.

No. 1—Wheels 16 and 14 in., inside leg measure 19 in., w't 10 lbs.....each $2 25

No. 2—Wheels 20 and 16 in., inside leg measure 21 in., w't 12 lbs.....each 2 75

No. 3—Wheels 24 and 18 in., inside leg measure 22 in., w't 15 lbs.....each 3 25

No. 4—Wheels 26 and 18 in., inside leg measure 23 in., w't 18 lbs.....each 3 75

Finished Black, with Rubber Tires.

No. 1X—Wheels 16 and 14 in., inside leg measure 19 in., w't 11 lbs.....each $5 00

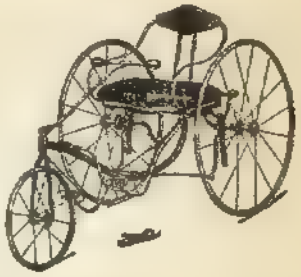
No. 2X—Wheels 20 and 16 in., inside leg measure 21 in., w't 13 lbs.....each 5 50

No. 3X—Wheels 24 and 18 in., inside leg measure 22 in., w't 16 lbs.....each 6 00

No. 4X—Wheels 26 and 18 in., inside leg measure 23 in., w't 19 lbs.....each 6 50

Quality guaranteed the best.

CHILDREN'S TRICYCLES.



Black Frame, Upholstered in Plush, C Plate Oval Iron Tire Wheels.

No. 18—18 in. rear wheels, w't 17 lbs. each $5 00

No. 20—20 in. rear wheels, w't 19 lbs. " 6 50

No. 22—22 in. rear wheels, w't 22 lbs. " 8 00

Black Frame, Upholstered in Plush, C Plate Rubber Tire Wheels.

No. 18X—18 in. rear wheels, w't 18 lbs., each.....$ 8 00

No. 20X—20 in. rear wheels, w't 20 lbs. each 10 00

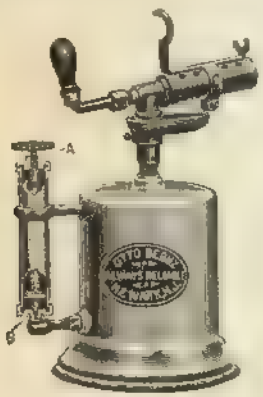
No. 22X—22 in. rear wheels w't 23 lbs. each.....12 00

Very easy running and handsomely finished. Improved spring seat, which takes all vibration and makes riding easy and comfortable. No. 18 is suitable for children two to four years of age, No. 20, three to five years, and No. 22, four to seven years.

TORCHES, FORGES, VISES, ETC.

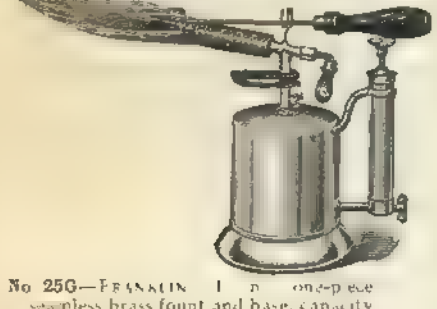
GASOLINE TORCHES.

No. 5G—BABY, nickel plated, height 4½ in., diam. 1¾ in., capacity about ½ pt., w't ¼ lb. . . . . each $1.50
Especially adapted for electricians, jewelers and plumbers, where light work is to be done quickly. Throws a four inch flame. Burns without air pressure.



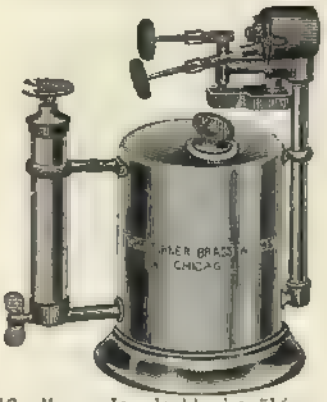
No. 12G.

No. 10G—1 qt., heavy drawn brass tank, special bronze metal burners, fitted with a never leak pump, the plungers of which screw down, 2 extra fibre washers, w't 4 lbs. . . . . each $4 20
No. 12G—1 qt., with adjustable solder iron holder, otherwise same as No. 10 G., w't 4 lbs. . . . . each 4 50
These torches are fitted with pumps, the plungers of which screws down, thus remaining out of the way and close a needle valve which is a positive shut-off.



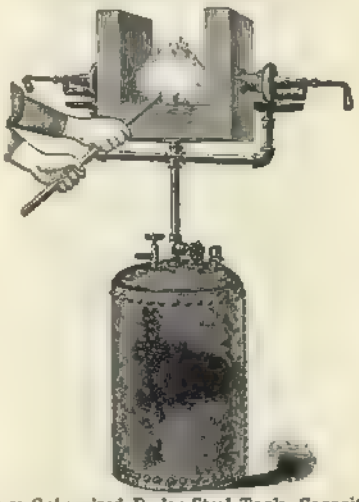
No 25G—FRANKLIN 1 qt. one-piece seamless brass fount and base, capacity 1 pt., polished, 4¼ in. pump, fitted to act as a handle with air valve at the bottom malleable iron adjustable drip cup, wood handled needle valve, wire solder iron holder height over all 7¼ in., w't 1¼ lb. each $3 50
No 15G [illegible] RELIABLE capacity 1 qt., [illegible] in. pump height 8½ in., otherwise same as No 25G, w't 4½ lbs each 6 00
ONE IN A BOX

GASOLINE TORCHES.



No. 4G—MOGUL JR., double jet, 5½ in., seamless brass fount and base, polished, capacity 1 qt., 5½ in. air pump, fitted to act as a handle, air valve at bottom, malleable iron drip cup, height 9½ in., w't 4½ lbs. . . . . each $8 50
Has a very strong flame, and is essential for work in automobile and bicycle repair shops.
ONE IN A BOX

BRAZING FORGES.



Heavy Galvanized Boiler Steel Tank, Capacity 5 Gallons. Extra Heavy Piping, Fitted with New Improved Adjustable Hydro-Carbon Burners.

No. 105G—Without pump or gauge, w't 103 lbs.★ . . . . . each $22 00
No. 107G—With pump, no gauge, w't 107 lbs ★. . . . . each 23 50
No. 108G—With gauge, no pump, w't 107 lbs.★. . . . . each 23 50
No. 109G—With gauge and pump, w't 109 lbs ★ . . . . . each 25 00
An ideal brazing forge for repair shops and all around purposes. Brazier head and tray adjustable to any height, easily operated.

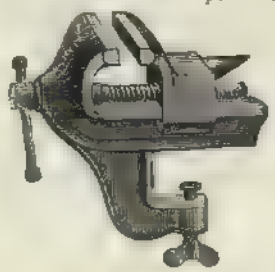
HAND VISES.

No. 95G—RALLIS, 1¼ in. steel jaws 4 in. maple handle, w't per doz. 7 lbs. per dozen $12 00

★*FOR SHIPMENT FROM FACTORY ONLY.*

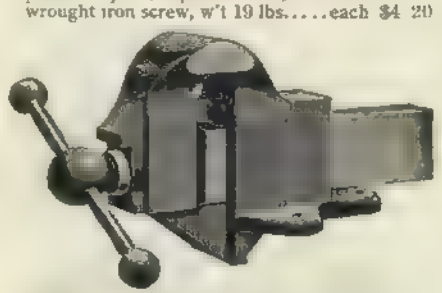
VISES.

No. 1G—1½ in. jaws, wrought iron screw w't per doz. 15 lbs. . . . . per dozen $3.75



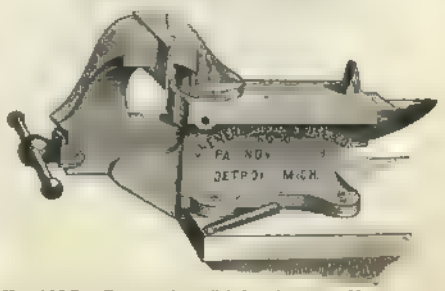
No. 02G—2 in. jaws, wrought iron screw, w't per doz. 24 lbs . . . . . per dozen $6 50

No. 32G—PARKER'S OVAL SIDE, 3¼ in. polished jaws, opens 4 in., covered wrought iron screw, w't 19 lbs. . . . . each $4 20



No. 64G—COLUMBIAN MACHINISTS', 4½ in. jaws, polished steel faces, milled and fitted, opens 5½ in. stationary base w't 53 lbs. . . . each $8 50

ANVILS AND VISES.



No. 130G—CHENEY'S, 3¾ in. jaws, self-adjusting back jaw, tempered steel faces, chilled steel anvil, smooth face, solid steel hardy or cutting-off tool, opens 5 in., w't 42 lbs. . . . . each $5 50

PUNCHES.

SPRING PUNCHES.

CYB *Spring Punches are forged from the best tool steel*

The Grip with its mild curve rests in the hand

The Cutting Tubes are made of tool steel, tapered to allow easy escape of leather and can be changed.

The Cutting Seat is copper to protect cutting edges.

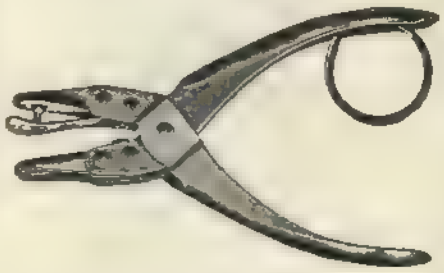
No. 21 CYB—Single tube, drop forged tool steel, polished, tube and spring straw color, assorted sizes, length 9 in., w't per doz. 8 lbs.....per dozen $5 00
HALF DOZEN IN A BOX

No. 24 CYB—4 tubes, drop forged tool steel, polished, tubes and spring straw color sizes, 4, 6, 8 and 10, length 9 in., w't per doz. 10 lbs.....per dozen $10 00
No. 10 Extra tubes..... " 1 40
HALF DOZEN IN A BOX.

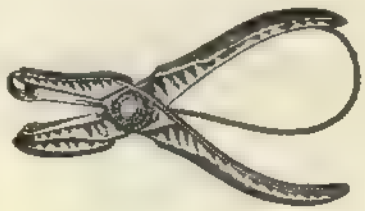
No. 544—Single tube, cast steel, polished, assorted sizes from 3 to 9, length 7½ in., w't per doz. 5¼ lbs ..per dozen $4 25
No. 20—Extra tubes..... " 1 40
ONE DOZEN IN A BOX

No. 4—4 tube, cast steel, polished, sizes 4, 6, 8 and 10, length 9 in., w't per doz. 8 lbs.....per dozen $10.00
No. 6—6 tube, otherwise same as No. 4, per dozen..... 16 00
No. 30—Extra tubes.....per dozen 1.40
HALF DOZEN IN A BOX.

CONDUCTORS' PUNCHES.



No. 22—Wrought steel, nickel plated, fancy holes, assorted, length 5 in., w't per doz. 2 lbs.....per dozen $5 00
HALF DOZEN IN A BOX



No. 260—Wrought steel, nickel plated with reservoir, fancy holes, length 5 in w't per doz. 2 lbs... per dozen $6 00
HALF DOZEN IN A BOX

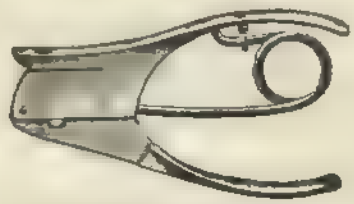
No. 12—Polished, with fancy holes, assorted, length 4½ in., w't per doz. 2½ lbs..... per dozen $ 7 00
No. 120—*Nickel plated*, otherwise same as No. 12, w't per doz. 2½ lbs., per dozen 10 00
HALF DOZEN IN A BOX.

CONDUCTORS' PUNCHES.

No. 36—Polished round hole, length 4½ in., w't per doz. 2¾ lbs per dozen $ 8 00
No. 137—Nickel plated, fancy holes, assorted, length 4½ in., w't per doz 2½ lbs..... per dozen 10 50
ONE DOZEN IN A BOX

No. 38—Nickel plated, fancy holes, assorted, length 5¼ in., w't per doz 3 lbs.....per dozen $15 00
HALF DOZEN IN A BOX.

No. 263—Nickel plated, fancy holes, assorted, length 4¾ in., w't per doz 3¾ lbs..... per dozen $27 00
This [illegible] punches made for street car transfers and the buckets, as the metal must be punched can be placed between the plates.
HALF DOZEN IN A BOX



No. 44—Nickel plated, fancy holes, assorted length 4 in., w't per doz. 4 lbs., per dozen..... $28.00
ONE IN A BOX.

BASE BALL GLOVES, BATS AND BALLS.

REACH FIELDERS' GLOVES.

No. 00W—Made entirely of mouse colored buckskin, good felt padding, leather lined.....per dozen $42.00

No. 3G—Drab suede buck, best felt padding.....per dozen 25 20

ONE IN A BOX

No. SW—Pearl colored calfskin, asbestos felt padding.....per dozen $32.40

No. 2G—Mouse colored calfskin, best felt padding.....per dozen 21.60

No. 11G—Drab finished calfskin, good felt padding.....per dozen 16 00

ONE IN A BOX.

All the above gloves have the Reach deep pocket web thumb, inside hump, double stitching and welted seams.

REACH FIELDERS' GLOVES.

No. 9G – Brown tan leather, heavily padded with best felt, per dozen $24 00

ONE IN A BOX.

No. 10G — Brown tan leather, well padded, with good felt leather lined, per dozen .$16 00

ONE IN A BOX

No. 54—Men's, drab finished calfskin, well padded.....per dozen $12.00

No. 12G—Boys', brown suede calfskin, good felt padding. ..... per dozen 8 00

No. 18—Men's, drab finished buckskin, felt padding ..... per dozen 8.00

No. 24—Boys', drab finished buckskin, good padding..... per dozen 4 00

NO. 54, ONE; NOS. 12G AND 24, SIX; AND NO. 18, THREE IN A BOX

All of the above gloves have the Reach deep pocket, web thumb, inside hump and are well finished.

ROGERS' PATENT POCKET GLOVES.

No. 68—Black leather, tan welt, full leather lined and leather bound at wrist, web thumb, strap and button at wrist. ..... per dozen $27 00

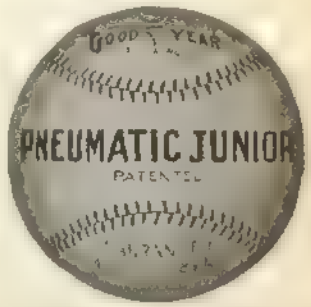
No. 8—Pearl asbestos buckskin, tan leather welt, full leather lined and leather bound at wrist, web thumb, strap and button.....per dozen 48 00

These gloves represent the realization of what all ball players have sought—a glove with a built up pad and a lacing feature to permit the adjustment of the padding at will.

ONE IN A BOX.

PNEUMATIC BASE BALLS.

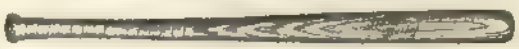
U. S. League, pneumatic, horse hide, regulation size 5 oz., 9 in., hand sewed by men, guaranteed for 9 full innings, inner wall of gelatine composition, compressed air center, each ball wrapped in tin foil and each in a separate sealed box .....per dozen $10.00



Junior, pneumatic, made exactly like the regulation but slightly smaller, per dozen..... $9.00

ONE DOZEN IN A CARTON.

REACH BASE BALL BATS.



No. 5/0—Second growth white ash, air dried, hand turned, taped handle, well balanced and finished, w't per doz. 30 lbs..... per dozen $16.00

No. 3/0—Second growth white ash, hand turned, burnt finish, taped handle, w't per doz 2[illegible] lbs..... per dozen 12 00

No. 1/0—Second growth white ash, golden finish, taped handle, w't per doz. 29½ lbs., per dozen..... 10 00

No. 82—Men's, good quality ash, special green tinted finish, well balanced, w't per doz 26 lbs .....per dozen $4 00

No. 83B—Boys', good quality ash, burnt finish well finished and balanced, w't per doz. 22 lbs..... per dozen 4.00

No. 87—Boys', polished ash, green finish, black and red hand around center, w't per doz. 17 lbs.....per dozen $1.60

WRITE FOR SPECIAL CATALOGUE AND PRICE LIST ON REACH GOODS

BASE BALL SUNDRIES.

BAT BAGS.

No. 12—Club pattern, extra heavy brown waterproof canvas, solid leather ends, folded top cover, double strap fasteners, will hold twelve bats, w't per doz. 24 lbs.....per dozen $60.00

No. 22—Individual extra heavy solid leather, rounded handles, will hold two bats, w't per doz. 10 lbs., per dozen..... $34 00

No. 2—Individual, extra heavy brown waterproof canvas, leather ends, rounded handles, will hold two bats, w't per doz. 6 lbs.....per dozen 20.50

BASES.

No. 24. No. 34.

Complete with Straps and Spikes.

No. 24—Heavy canvas, quilted, w't per set 15 lbs.....per set (3) $7 50

No. 34—Heavy canvas not quilted, w't per set 13 lbs.....per set (3) 4 80

BASE BALL SHOES.

"REV-O-NOC."

No. 15 REV-O-NOC—Kangaroo leather, good quality, serviceable and durable, complete with steel plates, w't 1½ lbs., per pair..... $3 90

No. 17 REV-O-NOC—Best kangaroo calf leather, chrome tanned, very stylish and well constructed, and a first class shoe in every particular, complete with nine reinforced steel spikes and steel plate, w't 1½ lbs.....per pair 5 00

No. 19 REV-O-NOC—SPRINTING, specially selected velour calf leather, very best workmanship, perfect in every detail, long reinforced steel spikes, complete with steel plates, a new departure in base ball shoes, w't 1½ lbs.....per pair 6 70

All "Rev-o-noc" shoes fully guaranteed.

ONE PAIR IN A BOX.

TOE PLATES.

Complete with Screws or Rivets.

No. 10—Professional, best quality steel, per dozen pairs..... $3 20

No. 11—Fine quality blued rolled steel, per dozen pairs..... 2 20

No. 12—Amateur, good quality steel, per dozen pairs..... 1 10

ONE DOZEN PAIRS IN A BOX.

PITCHERS' TOE PLATES.

Complete with Screws or Rivets.

No. 5—Aluminum, right or left, per dozen $2.50

No. 4—Brass, right or left " 2 50

State if for right or left shoe when ordering pitchers' toe plates.

HEEL PLATES.

Complete with Screws or Rivets.

No. H10—Professional, best quality steel, per dozen pairs..... $3 20

No. H11—Fine quality blued rolled steel, per dozen pairs..... 2 20

No. H12—Amateur, good quality steel, per dozen pair..... 1 10

ONE DOZEN PAIRS IN A BOX.

BODY PROTECTORS.

Rev-o-noc Reach

"REV-O-NOC."

No. 4 REV-O-NOC—League pattern regulation size, best quality rubber cloth, air chambers, so constructed as not to interfere with the movements of the wearer, light and absolute protection to the body..... each $7 00

No. 5 REV-O-NOC—Amateur pattern regulation size, best quality rubber cloth, air chambers. each 6 00

REACH.

No. 1P—Men's league, extra strong guaranteed material, best quality rubber, inflated with air, light and pliable, so constructed as not to interfere with the movements of wearer each $7 50

No. 1AP—Men's amateur, best quality rubber, inflated with air, absolute protection to body.....each 6 00

No. 2AP—Men's special, guaranteed material, when not in use can be rolled in small space by letting out air.....each 4 50

No. 1BP—Boys' amateur, extra strong, inflated with air.....each 3 00

WRIST SUPPORTERS.

No. 100—Domestic, russet leather, single strap and buckle..... per dozen $2 20

No. 102—Domestic russet leather double strap and buckle.....per dozen 3 60

ONE DOZEN IN A BOX.

WRIST BANDS.

Two straps lace over and under rings and half hitch and cinch in the ring while adjusting. Equally useful for heavy or athletic work

No. 84G—Pliable leather, assorted colors, yellow, brown, lemon, cream, green, pearl and black, width 4 in.....per dozen $5.30

ANKLE SUPPORTERS.

No. 300—Sheepskin, a perfect support for the ankle.....per dozen pairs $ 9.60

No. 200—Soft tanned calfskin leather, otherwise same as No. 300, per dozen pairs..... 10 50

ONE PAIR IN A BOX.

TABLETS AND INDICATORS.

No. 95 No. 46

No. 95—REACH, scoring tablets, celluloid, an accurate device for the record of runs and outs, a handy size for the vest pocket..... per dozen $4 00

No. 46—REACH umpires and scorers celluloid, for the use of umpires and scorers, to keep tally of strikes and balls, highly recommended.....per dozen 8.00

REACH SCORE BOOKS.

No. 1SB—Pocket size, paper cover, 7 games.....per dozen $1.44

No. 2SB—Pocket size, cloth cover, 22 games.....per dozen 3.60

No. 3SB—Pocket size, cloth cover, 50 games.....per dozen 7.20

No. 4SB—Club size, cloth cover, 30 games.....per dozen 13.20

BATTING AND PITCHING GUIDES.

No. 14—REACH, batting.....per dozen $2.40

No. 24—REACH, curve pitching.....per dozen 2.40

PISTOLS AND REVOLVERS.

STEVENS' GALLERY PISTOLS.

3¼ Inch Barrel with Plain Sight.

No. 10—22 caliber, rim fire, single shot, nickel plated frame, blued barrel, plain walnut grip, w't 7 oz. .....each $3 00

Shoots 22 short cartridges.

Diamond Model.

No. 11—22 caliber, rim fire, single shot, with open sights, blued barrel, nickel plated frame, rosewood stock, 6 in. barrel, w't 9 oz. .....each $5 00

No. 12—22 caliber, rim fire, single shot, with combined sights, blued barrel, nickel plated frame, rosewood stock, 6 in. barrel, w't 9½ oz.....each 5 00

Shoots 22 long rifle cartridges.

Diamond Model.

No. 13—22 caliber, rim fire, single shot, with open sights, 10 in. blued barrel, nickel plated frame, rosewood stock, w't 12 oz.. .....each $7.50

No. 14—22 caliber, rim fire, single shot, with combined sights, 10 in. blued barrel, nickel plated frame, rosewood stock, w't 10½ oz.....each 7 50

Shoots 22 long rifle cartridges.

No. 35—Off-hand target, 6 in. round barrel with octagon breech, nickel plated frame, walnut stock, sporting rear and bead front sights, for 32 long rifle rim fire and 22 Stevens-Pope Armory rim fire cartridges, w't 1 lb. 6 oz.....each $7.50

Stevens pistols were among the earliest if not the earliest breech loading pistols made in the United Stated. The accuracy of Stevens pistols is proved in the great record scores made by American marksmen who have used them. They have been for many years the chosen arm of amateur and expert shots at home and abroad.

HARRINGTON & RICHARDSON'S REVOLVERS.

Model 1906 Nickel Plated, Rubber Stock, 2½ Inch Octagon Barrel.

No. 2122—22 caliber, rim fire, 7 shots, w't 10 oz. .....each $2.60

Shoots 22 short, 22 long cartridges.

These revolvers are adapted for 32 S. & W., 38 S. & W. and 44 Webley cartridges.

American Double Action, Standard Pattern, Nickel Plated, Rubber Stock, 2½ Inch Octagon Barrel.

No. 4132—32 caliber, center fire, 6 shots, w't 16 oz.. .....each $2 60
No. 4138—38 caliber, center fire, 5 shots, w't 16 oz.. .....each 2.60
No. 4144—44 caliber, center fire, 5 shots, w't 18 oz.. .....each 2.90
No. 2132—32 caliber, center fire, 5 shots, small frame, w't 10 oz., model 1905, each 2.60

American Double Action, Standard Pattern, Blued Finish, Rubber Stock, 2½ Inch Octagon Barrel.

No. 4132B—32 caliber, center fire, 6 shots, w't 16 oz.. .....each $2 95
No. 4138B—38 caliber, center fire, 5 shots, w't 16 oz.. .....each 2 95
No. 4144B—44 caliber, center fire, 5 shots, w't 18 oz. .....each 3 20

American Double Action, Nickel Plated, Rubber Stock, 4½ Inch Octagon Barrel.

No. 4232—32 caliber, center fire, 6 shots, w't 17 oz.. .....each $2 90
No. 4238—38 caliber, center fire, 5 shots, w't 17 oz.. .....each 2.90
No. 4244—44 caliber, center fire, 5 shots, w't 20 oz.. ..... each 3.15

American Double Action, Blued Finish, Rubber Stock, 4½ Inch Octagon Barrel.

No. 4232B—32 caliber, center fire, 6 shots, w't 17 oz.. .....each $3.25
No. 4238B—38 caliber, center fire, 5 shots, w't 17 oz.. .....each 3.25
No. 4244B—44 caliber, center fire, 5 shots, w't 20 oz.. .....each 3.50

American Double Action, Nickel Plated, Rubber Stock, 6 Inch Octagon Barrel.

No. 4432—32 caliber, center fire, 6 shots, w t 18 oz. .....each $3 20
No. 4438—38 caliber, center fire, 5 shots, w t 18 oz .....each 3 20
No. 4444—44 caliber, center fire, 5 shots, w't 20 oz. ... .each 3.50

This revolver is constructed upon lines with features which commend themselves to all. Its simplicity is very noticeable in the illustration.

HARRINGTON & RICHARDSON'S REVOLVERS.

Young America, Small Frame, Double Action. Nickel Plated, Rubber Stock, 2 Inch Octagon Barrel.

No. 4122—22 caliber, rim fire, 7 shots, w't 8 oz.. .....each $2 60
No. 4332—32 caliber, center fire, 5 shots, w t 9 oz .....each 2.60

Shoots 22 long and 32 S. & W. cartridges.

Young America, Small Frame, Double Action, Vest Pocket.

No. 3232—32 caliber, center fire, 5 shots, 1⅛ in. barrel, nickel plated, rubber stock, w't 8 oz.. .....each $2 60

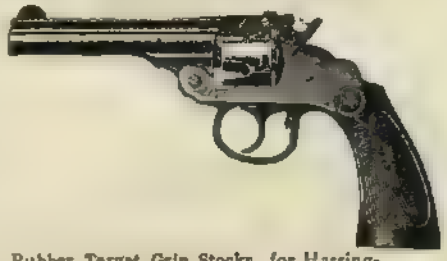
Shoots 32 S. & W. cartridges.

Young America, Small Frame, Nickel Plated, Safety Hammer, Double Action, Rubber Stock.

No. 3132—32 caliber, center fire, 5 shots, 2 in. octagon barrel, w't 9 oz.. .....each $2.60
No. 5132—32 caliber, center fire, 6 shots, 2½ in. octagon barrel, w't 16 oz..each 2.60
No. 5138—38 caliber, center fire, 5 shots, 2½ in. octagon barrel, w't 15 oz..each 2.60

Shoots 32 S. & W. and 38 S. & W. cartridges.

TARGET GRIP STOCKS.

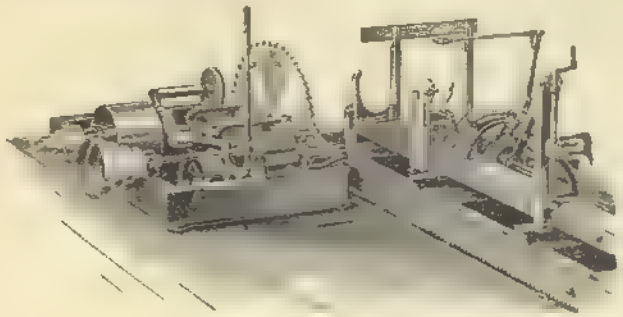


Rubber Target Grip Stocks, for Harrington & Richardson Automatic, Double Action and Premier revolvers..per pair $1.00

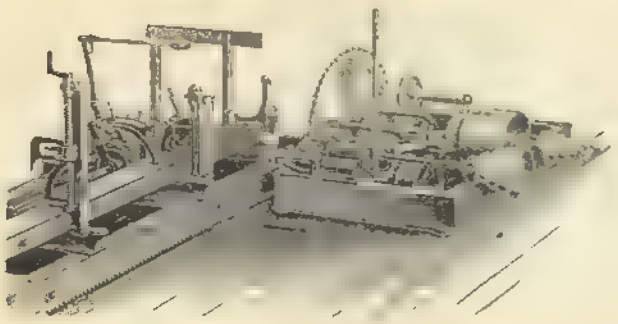
Be sure to specify whether for regular Automatic or Premier model revolvers.

SAWS AND MANDRELS.

CIRCULAR RIP AND CROSS-CUT SAWS.



Right-Hand Saw.



Left-Hand Saw.

Solid Tooth, Ground and Tempered.

In ordering, be particular to state whether cross-cut or rip, right or left hand is wanted; also size of mandrel hole and speed of saw

DIAMETER, INCHES.	THICKNESS, GAUGE.	SIZE OF HOLE, INCH.	EACH	EXTRA FOR EACH ADDITIONAL GAUGE (HEAVIER).	BEVELING NEW SAWS (GRINDING OR BEVELING OLD SAWS EXTRA PER GAUGE.	EXTRA FOR SETTING AND SHARPENING IF RIP SAW.	EXTRA FOR SETTING AND SHARPENING IF CROSS-CUT SAW.
10	16	1	$5 50	$0 12	$0 28	$0 15	$0 65
11	16	1	5 80	14	30	18	70
12	15	1	6 10	17	35	20	75
14	15	1 1/8	6 00	21	40	60	85
16	14	1 1/8	6 00	25	50	65	95
18	13	1 1/4	7 50	30	50	70	1 05
20	13	1 1/4	9 00	35	70	80	1
22	12	1 1/4	10 00	45	80	90	1
24	11	1 1/4	11 00	55	90	1 00	1 45
26	11	1 1/4	12 00	65	1 05	1 10	1 60
28	10	1 1/4	13 00	80	1 20	1 30	1 75
30	10	1 1/4	14 00	90	1 30	1 40	1 95
32	10	1 1/4	15 00	1 00	1 40	1 50	2 05
34	9	1 1/4	17 00	1 20	1 60	1 70	2 25
36	9	1 1/4	18 00	1 40	1 70	1 80	2 55
38	9	1 1/4	21 00	1 75	1 85	1 85	2 75
40	9	2	26 00	2 00	2 00	2 00	2 95
42	8	2	32 00	2 50	2 20		3 15
44	8	2	38 00	3 00	2 40		3 35
46	8	2	50 00	3 50	2 60		3 60
48	8	2	70 00	4 00	2 80		3 80
50	7	2	80 00	4 50	3 00		4 10
52	7	2	90 00	5 00	3 25		4 40
54	7	2	100 00	6 00	3 50		4 70
56	7	2	110 00	7 00	3 75		5 00
58	7	2	120 00	8 00	4 00		5 30
60	6	2	145 00	9 00	4 35		5 60

Circular saws for bone or ivory, add 50 per cent to above list.
No extra charge for saws one gauge thicker than list.
Circular saws 48 inches and larger if made thinner than 10 gauge, are not warranted, and are 10 per cent. higher for each gauge thinner than No. 10.
Circular saws 42 inches and less in diameter beveled one gauge without extra charge; 44 inches and larger beveled two gauges without extra charge.

CIRCULAR SAW MANDRELS.

With Pulley in Center.

Nos.	1	2	3	4	
Diameter of pulley	2½	3	3½	4	in
Face of pulley	3½	4	4½	5	in
Diameter of flange	1½	3	3½	4	in
Length of shaft	17	19	18	20	in
Diameter of shaft	1⅛	1⅜	1⅝	1⅞	in
Size of hole in saw	1	1⅛	1¼	1⅜	in
Weight	15	22	27	37	lbs
Each	$7 00	8 00	8 50	9 75	

Nos.	5	6	7	
Diameter of pulley	4½	5	5½	in
Face of pulley	5	6	6½	in
Diameter of flange	4½	5	5½	in
Length of shaft	22	24	26	in
Diameter of shaft	1⅝	1⅞	2⅛	in
Size of hole in saw	1½	1⅝	1¾	in
Weight	55	55	70	lbs
Each	$11 00	12 50	14 75	

Nos	8	9	10	
Diameter of pulley	6	7	8	in
Face of pulley	7	8	9	in
Diameter of flange	6	6	6	in
Length of shaft	28	32	36	in
Diameter of shaft	2⅜	2⅝	3	in
Size of hole in saw.	1½	1⅝	1¾	in
Weight	88	120	155	lbs
Each	$15 50	21 50	25 75	

With Pulley on End.

Nos.	1	2	3	4	
Diameter of pulley	3½	3	3½	4	in
Face of pulley	4½	4	4½	5	in
Diameter of flange	2½	3	3½	4	in
Length of shaft...	16½	19	21½	24	in
Diameter of shaft.	1⅛	1⅜	1⅝	1⅞	in
Size of hole in saw	1	1⅛	1¼	1⅜	in
Weight	12	20	26	32	lbs
Each	$7 70	8 50	9 60	10 75	

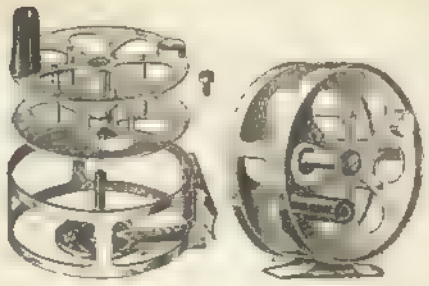
Nos.	5	6	7	
Diameter of pulley	4½	5	5½	in
Face of pulley	5½	6	6½	in
Diameter of flange	4½	5	5½	in
Length of shaft.	26	28	30	in
Diameter of shaft	1⅝	1⅞	2⅛	in
Size of hole in saw.	1½	1⅝	1¾	in
Weight.	42	50	60	lbs
Each	$12 00	13 75	15 00	

Nos	8	9	10	
Diameter of pulley	6	7	8	in
Face of pulley.	7	8	8	in
Diameter of flange	6	6	6	in
Length of shaft.	32½	37	41	in
Diameter of shaft	1⅝	1¾	1⅞	in
Size of hole in saw.	1½	1⅝	1¾	in
Weight	82	125	175	lbs
Each	$17 50	21 40	28 00	

When ordering saw mandrels, send sketch and give distance from saw to end of mandrel, if the pulley is between the bearings. If the pulley is on the end of mandrel, give distance from saw to inside edge of pulley. Also, whether the pulley is on the right or left hand side of mandrel when saw is running toward you. Mandrels are made with pulley on right hand side, with left hand thread, unless otherwise ordered

FISHING REELS.

EXPERT.

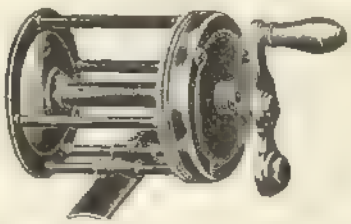


No. 3419—EXPERT, 60 yds., spool 2⅝x⅝ in., new patent guard which acts as a drag by the pressure of the thumb on the guard, extra hard spring metal, impossible to bend out of shape, click wheel and click spring of hardened and tempered steel, sliding click, spool can be removed with a coin, w't 4½ oz..... per dozen $25.80

No. 3417 [illegible] yds., spool [illegible] otherwise same as No. 3419 per dozen 36 00

ONE IN A BOX

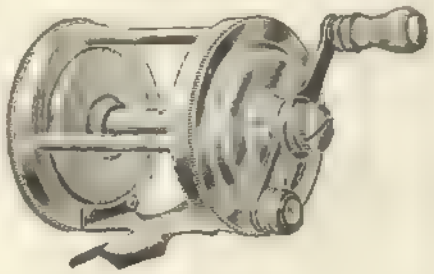
REV-O-NOC CHICAGO CASTING.



Nickel Plated, Quadruple Multiplying.

No. J8380 [illegible]—80 yds., long spool 1⅝ in., Kentucky pattern, balanced ivory handle, extension steel pivots in bushed bearings, with oil cups, patent back sliding click, jeweled bearings, w't 8 oz.....per dozen $60.00

NINE MULTIPLE.



No. J4160—60 yds., 1⅝ in. spool, German silver, jeweled steel pivot, adjustable extension handle, w't 7 oz. per dozen..... $108.00

No. J4180—80 yds., 1⅝ in. spool, w't 8 oz..... per dozen 120 00

These reels have patent internal click. This click is connected by turning left disk one-half inch to right. The handle can be extended or shortened at will to accommodate the amount of weight to be pulled in

The reel is very handsomely finished and is made so that there is not a screw visible anywhere on the reel.

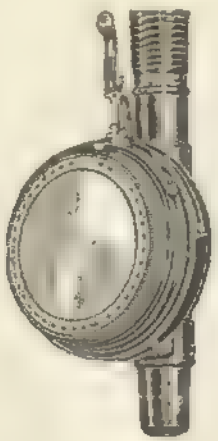
ONE IN A BOX

AUTOMATIC.

No. 80—ROCHESTER, 100 yds., automatic, aluminum, satin finish, steel wearing parts, winding automatically 100 ft. without rewinding, automatic tension, w't 6½ oz. .....per dozen $66.00

This reel is light and strong and so simple in construction that it cannot get out of order.

ONE IN A BOX.



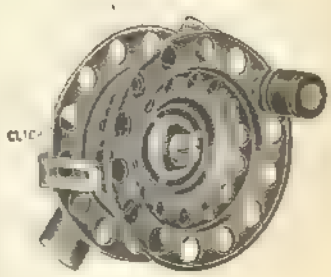
No. M75—MARTIN, automatic 35 yds., ⅝ in. spool, diameter 3¼ in., without lock brake, aluminum top, nickel plated base, main spring is wound by turning top plate to right, line is wound by pressure on brake lever, w't 8 oz..... . . . .per dozen $72.00

No. 76—MARTIN, automatic, 40 yds., ⅝ in. spool, diameter 3¼ in., with lock brake, w't 8 oz., otherwise same as No. 75.....per dozen 80 00

No. 77—MARTIN, automatic, 50 yds., ⅝ in. spool, diameter 3¼ in., with lock brake, w't 8 1-5 oz., otherwise same as No. 75..... per dozen 88 00

ONE IN A BOX

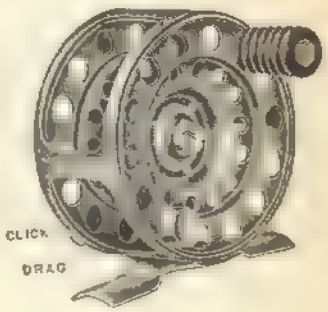
GEM.



No. 89—60 yds., nickel plated, light weight, adjustable click and line guide, w't 2 oz..... .....per dozen $8.50

ONE IN A BOX.

IDEAL.



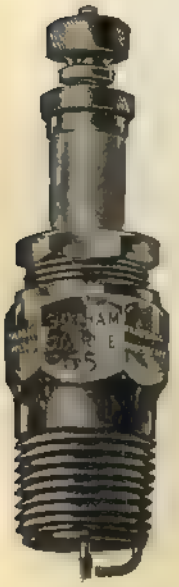
No. 91—60 yds solid German silver, adjustable click and drag, balanced handle, w't 4 oz. ..... per dozen $24.00

No. 92 100 yds., w't 6 oz otherwise the same as No. 91... .per dozen 30.00

This is a light, handsome and serviceable reel. It has an open spool which dries the line quickly.

ONE IN A BOX.

SPARK PLUGS.



No. 55.

No. 4A.

No. 55—Sta-rite, Gotham, ½ in..each $1.00
No. 4A—Sta-rite, Separable, ½ in.. " 1.25

No. 21

Nos. 23 and 24

No. 21—DeMun's, solid mica, ½ in. standard.....each $1.50
No. 23—Mezger, soot-proof, all sizes except Winton.....each 1.00
No. 24—Mezger, soot-proof Winton extension.....each 1.50
Porcelains for No. 24, extra " .50
Sparking Rods for Nos. 23 and 24, extra " .10

Never-Miss.

No. 8N—Porcelain ½ in. standard..each $1.00
No. 8A—Mica Metallic.. " 1.00
No. 8B—¾-18 thread..... " 1.00
Porcelains for No. 2, extra..... " .30

No. 35.

No. 31.

No. 35—A. B. C. porcelain, ½ in. standard.....each $1.00
No. 31—Tip Top, robust style, full brass, porcelain, ½ in. standard, each 1.00
No. 31½—Tip Top, Metric, porcelain, robust style, full brass.....each 1.00

No. 33.

No. 34.

No. 33—Sterling, porcelain, ½ in. standard.....each $1.50
No. 34—Delta, porcelain, ½ in. standard.....each 1.50

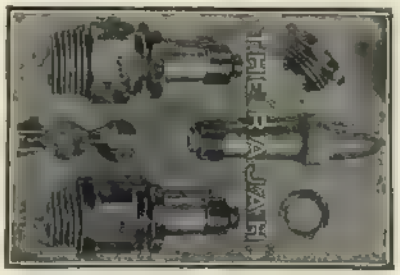
Dow, Mica, Double Insulation.

No. 7—½ in. Metric and Autocar..each $1.50
No. 2D—Winton..... " 2.00
Insulators for Nos. 7 and 8, extra..... " .75

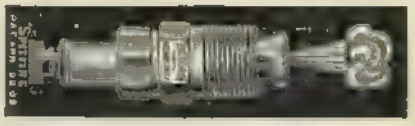
No. 16

No. 16½

No. 16—Sootless, open end each $1.75
No. 16½—Sootless, closed end..... " 1.75
This plug is especially adapted for use in air-cooled marine and automobile engines that use a large amount of lubricating oil.



No. 17—Rajah, highest grade, imported hard fire porcelain, ⅜ in. standard, ½ in. long, ½ in. Columbia, Autocar, Metric.....each $2.00
Porcelains for No. 17, extra..... " .50
Gaskets, extra..... " .10
Bushings, extra..... " .20
Rajah Clip Terminal with post for use with any spark plug, extra.....each .15
Highest grade imported hard fire porcelain of specially selected quality, carefully packed which ensures against firing through.
Rajah clip terminals are furnished separately with post for attaching to spark plugs of any design or make.
When ordering state clearly the name of your car and the thread required on spark plug.



Mosler Spit Fire.

No. 9—⅜ in. pipe thread each $1.50
No. 10—½ in. pipe thread, short " 1.50
No. 11—½ in. pipe thread, long.. " 1.50
No. 12—Metric, 18 mm..... " 1.50
No. 13—Panhard Packard, Metric with large spreader..... each 2.00
No. 14—Autocar..... " 2.00
No. 15—Knox..... " 2.00

BATTERIES, MAGNETOS AND SPARK PLUGS.

STORAGE BATTERIES.

Duro, for Ignition and Lighting of Motor Cars and Boats.

1909 Standard Sizes.

	SIZE	VOLTAGE.	CAPACITY.	EACH
No. 46	9½×5⅞×8¼ in.	6	40 A. H.	$23 [illegible]
No. 66	9½×5 [illegible] ×9 in.	6	60 A. H.	27 [illegible]
No. 86	11½×5 [illegible] ×9 in.	6	80 A. H.	30 [illegible]
No. 106	13½×5⅞×9 in.	6	100 A. H.	40 00
No. 68	11⅝×5⅞×9½ in.	8	60 A. H.	35 00

Special sizes made to order only.

For single cylinder motors (jump spark), use No. 46. For four-cylinder engines, Nos. 68 or 86. For lighting use No. 106. Make and break — No. 68 with primary coil. For magneto results and high speed motors install No. 68 and adjust coil springs loosely.

Charging Outfit.

No. B—110 volts ..... each $4 50

On the average coil, automobiles will obtain the following mileage per charge of battery

Size of Battery:	One Cylinder Miles	Two Cylinder Miles	Four Cylinder Miles
40 Ampere hour.	2,000	1,500	1,000
70 Ampere hour.	2,600	2,000	1,800

These are not guesses or estimates, but actual results obtained from the use of Duro Batteries for three years.

Mileage will vary with coil, timer, roads, speed etc.

DRY BATTERIES.

No. 700G "Rev-o-noc"—1½ volts, 2½×6 in., 15 to 18 amperes, for use with telephones, gas engines automobiles and wherever intermittent service of the highest efficiency is needed wt 2 lbs.. . . . each $0 50

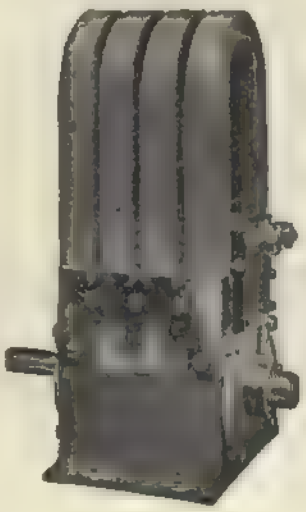
ONE HUNDRED AND TWENTY-FIVE IN A BARREL.

No. 160JG—EVER READY, style "J" 2½×6 in., 1½ volts, 22 to 25 amperes, for use on automobiles, gas and gasoline engines, motor cycles, telephone work, etc wt 2½ lbs..... each $0.60

No. 170KG—EVER READY, style "K" 3×7 in., 1½ volts, 27 to 30 amperes, for use on automobiles, gas and gasoline engines, motor cycles, etc. wt 3¾ lbs., each 1 20

NO. 160JG, ONE HUNDRED AND TWENTY-FIVE; NO. 170KG, SEVENTY-FIVE IN A BARREL.

K-W MAGNETOS.

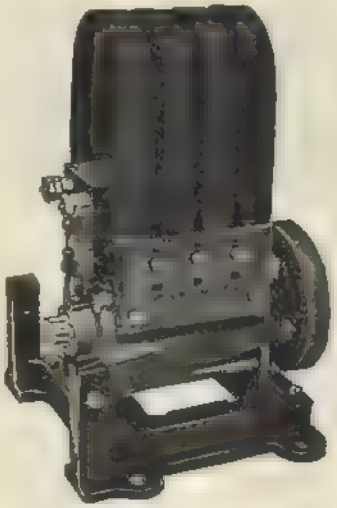


Belt or Gear Drive.

No. A—For jump spark, with 2½, 3½, or 4½ in. diameter belt pulley, base 4×5 in., around magnets, 4×[illegible] in., height 10½ in., shaft [illegible] in. from bottom of base to center of shaft 1⅞ in.. each $35 00

No. A M—For "Make and break" must be gear driven at engine speed and no coil is needed, sizes and dimensions same as No. A, except with [illegible] in shaft each 35 00

The oil cups can be mounted for running in an inverted position, if so ordered



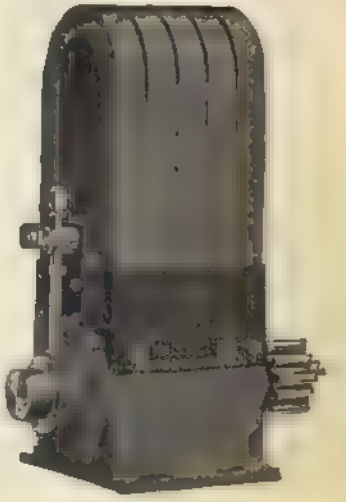
Friction Drive.

No. B—For jump spark only, with 3, 4 or 5 in. friction wheel, base 6½×7 in., around magnets 4×3½ in., height 11 in.....each $35 00

This is the magneto that made the name K-W famous and a standard for good ignition. Has single friction wheel of first-class sole leather and will not slip. Will start the engine easily without batteries.

Mount the Magneto so that the flat spring presses the friction wheel of the Magneto securely against the fly wheel of the engine. The flat spring can be mounted on either standard so that it can be applied on either side of the flywheel. It will run equally well in either direction.

K-W MAGNETOS.



For Belt or Gear Drive.

No. C—For jump spark, speed 2½ or 3 times as fast as the engine, base 4×5 in., around magnets 4×3½ in., height 10½ in., shaft ½ in., from bottom of base to center of shaft 1⅞ in....each $45 00

No. C M—For "Make and break," must be gear driven at engine speed and no coil is needed, sizes and dimensions same as No. C.....each 45.00

No. C is intended for heavy duty and will start the largest engines easily without batteries.

This is a five-magnet machine and can be run at a much lower speed than No. A. It has ample ball bearings and convement oilers. Its construction and general principles are the same as No. A.

No. C-M must be gear driven at engine speed and no coil is needed. Starts the heaviest engine easily, and gives more power with less fuel because it gives a hotter spark. The best thing made for make and break spark. Construction and dimensions same as No. C, except that a different winding is used.

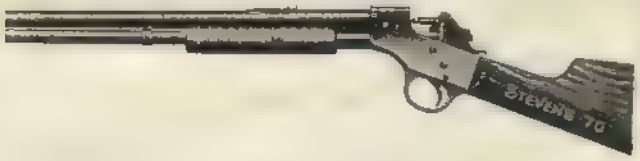
SPARK PLUGS.

No. 5—Lower threaded part polished steel, other metal parts polished brass, porcelain, ¼ in. gas pipe thread each $0 90

No. 32A—STA-RITE, mica, lower threaded part polished steel, balance polished brass, 2 point, ½ in. gas pipe thread.....each $1 50

TARGET AND SPORTING RIFLES.

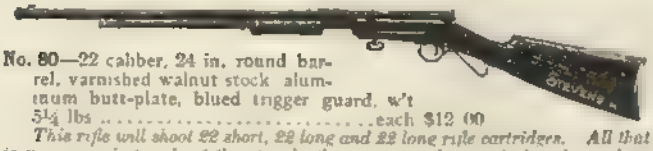
STEVENS' "VISIBLE LOADING" REPEATER,



No. 70—22 caliber, chambered for 22 shorts and C. B caps, holds 15 cartridges, 20 in. round barrel, length over all 35 in., varnished stock and slide handle, fitted with bead front sight, w't 5 lbs. ..... each $7.00

The Stevens "Visible Loading" Repeating Rifle is strictly up to date in every particular, and embodies many novel and meritorious features. The "Visible Loading" feature is entirely new and so simple that it will appeal instantly to the shooter for the reason that cartridge is always in sight while being fed into chamber. The magazine tube and breech block are in one piece. Has extra strong double extractors, making the extraction of the empty shell absolutely positive. The breech block has a positive lock and is operated by the slide handle after the breech block is closed. The hammer also has a positive lock and is always locked, while the breech block is unlocked.

STEVENS' REPEATER.



No. 80—22 caliber, 24 in. round barrel, varnished walnut stock aluminum butt-plate, blued trigger guard, w't 5¼ lbs. ..... each $12 00

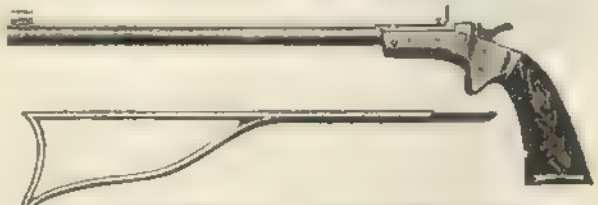
This rifle will shoot 22 short, 22 long and 22 long rifle cartridges. All that is necessary is to adjust the stop in the carrier and any of the above three cartridges will work properly

No. 85—25 caliber, rim fire, otherwise same as No. 80, w't 5¼ lbs., each $12.00

The 22 caliber Stevens' repeater is an up-to-date repeating rifle, containing many new and novel features never before embodied in a rifle of this class. The action and parts are self-contained. The mechanism is attached to the receiver in connection with the sliding fore-arm.

The action, in principle, is of the bolt type. The breech bolt in action works the block lever, first upwards, then back, extracting and ejecting the empty shell; its forward motion forcing a fresh cartridge in barrel. The construction of the breech bolt is such that when the action is closed it presents a solid top, preventing dirt or any obstruction entering to clog it. The manipulation of this bolt makes it an impossibility to discharge a cartridge until the action is locked.

STEVENS' RELIABLE POCKET.

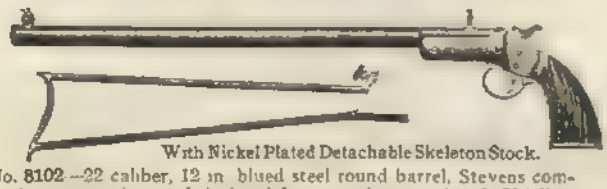


With Nickel Plated Detachable Skeleton Stock.

No. 8510—22 caliber, 10 in. blued steel round barrel Stevens' globe and peep sights, nickel plated frame, walnut stock, w't 1 lb., each $8 25

The rifle is also especially adapted for all light work. It has the Stevens patent rear sight. The rest is secured in the butt-plate by a groove, making a firm connection.

STEVENS' NEW MODEL POCKET.



With Nickel Plated Detachable Skeleton Stock.

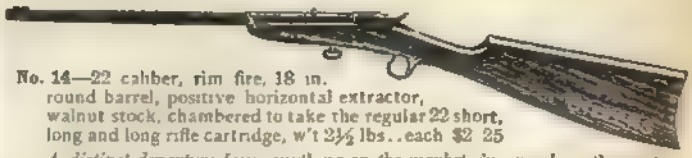
No. 8102—22 caliber, 12 in. blued steel round barrel, Stevens combination sights, nickel plated frame, walnut stock, w't 2¼ lbs., each. $10 00

No. 8105—22 caliber, 15 in. barrel, otherwise same as No. 8102, w't 2⅜ lbs. ..... each 11.25

The front sight is a combination globe and top; the rear sight is folding and adjustable. The rifle has the tip-up action peculiar to other rifles of this make, and is adapted to shoot 22 caliber short, long and long rifle cartridges.

ONE IN A BOX.

STEVENS' LITTLE SCOUT.

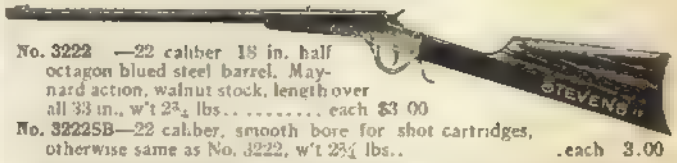


No. 14—22 caliber, rim fire, 18 in. round barrel, positive horizontal extractor, walnut stock, chambered to take the regular 22 short, long and long rifle cartridge, w't 2½ lbs. . each $2 25

A distinct departure from anything on the market, inasmuch as the parts are self-contained, that is, there is no frame, but the parts are attached to the action itself, making it very simple

All of the working parts of this rifle can be easily taken out by simply removing the stock from the barrel, which is attached with a thumb screw. The action is attached to the barrel and the breech-block drops down when a cartridge is to be inserted or an empty shell extracted. Open rear and German-silver knife-edge front sights.

STEVENS – MAYNARD, JR.



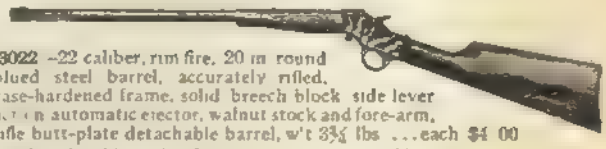
No. 3222—22 caliber 18 in. half octagon blued steel barrel. Maynard action, walnut stock, length over all 33 in., w't 2¾ lbs. ..... each $3 00

No. 3222SB—22 caliber, smooth bore for shot cartridges, otherwise same as No. 3222, w't 2¾ lbs. . .each 3.00

Owing to the increased demand for a low-priced rifle and at the same time a desire on the part of the Stevens Arms and Tool Co. to have brought out a good yet cheap rifle, which they call the Stevens-Maynard Jr. The barrel and short slim fore-arm, are nicely finished, similar to rifles costing twice as much. This rifle is bored to shoot 22 short, 22 long and 22 long rifle cartridges and C. B. caps.

FIFTY IN A CASE.

STEVENS'.



No. 3022—22 caliber, rim fire, 20 in. round blued steel barrel, accurately rifled, case-hardened frame, solid breech block side lever action automatic ejector, walnut stock and fore-arm, rifle butt-plate detachable barrel, w't 3¾ lbs ...each $4 00

No. 3032—32 caliber, rim fire, otherwise same as No. 3022, w't 4¼ lbs. ..... each $4 00

No. 3032SB—32 caliber smooth bore for shot cartridges, otherwise same as No. 3022, w't 4⅛ lbs ..... each 4 00

FIFTY IN A CASE.

STEVENS' FAVORITE.

Bored Smooth for Shot Cartridges.

No. 3822—FAVORITE, 22 caliber, rim fire, 22 in. half octagon barrel, case-hardened frame, solid breech block, knife blade front sight, lever action, detachable barrel, w't 4½ lbs. ..... each $6.00

No. 3832—FAVORITE, 32 caliber, rim fire, otherwise same as No. 3822. ..... each 6.00

RIFLES.

STEVENS'.

No. 3522 —22 caliber, rim fire, 22 in. half octagon barrel, case-hardened frame, solid breech block, Rocky Mountain front and sporting rear sights, lever action, detachable barrel, w't 4½ lbs., each..... $6.00

No. 3522W—22 caliber, using 22 caliber, W. R. F. cartridges, otherwise the same as No. 3522, w't 4½ lbs.....each 6.00

No. 3525 —25 caliber, rim fire, otherwise same as No. 3522, w't 5¼ lbs.....each 6.00

No. 3532 —32 caliber, rim fire, otherwise same as No. 3522, w't 5 lbs.....each 6 00

No. 3522 will shoot 22 short, 22 long, 22 long rifle and 22 Stevens-Pope Armory cartridges.

FIFTY IN A CASE.

No. 3622—22 caliber, rim fire, 22 in. half octagon barrel case-hardened frame, solid breech block, Beach front and open rear sights, Vernier sight on grip, lever action, detachable barrel, w't 4½ lbs each..... $8 50

This rifle will shoot 22 short, 22 long, 22 long rifle and 22 Stevens-Pope Armory cartridges.

No. 3722—22 caliber, rim fire, 22 in. half octagon barrel, case-hardened frame, solid breech block, Lyman front, open, and Lyman rear sights on grip, lever action, detachable barrel, w't 4½ lbs.....each $9 00

This rifle will shoot 22 short, 22 long, 22 long rifle and 22 Stevens-Pope Armory cartridges.

STEVENS' NEW IDEAL, SPORTING AND GALLERY.

Half Octagon Barrel, Rifle Butt-Plate, Drop-Forged Case-Hardened Frame, Oiled Walnut Stock and Fore-Arm, Rocky Mountain Front and Sporting Rear Sights.

No. 9104—22 long rifle caliber, rim fire, 24 in. barrel, w't 7¼ lbs., each..... $10 00

No. 9106—22 long rifle caliber, rim fire, 26 in. barrel, w't 7¾ lbs., each..... 12.00

No. 9204—25 Stevens caliber, rim fire, 24 in. barrel, w't 7¼ lbs., each..... 10 00

No. 9206—25 Stevens caliber, rim fire, 26 in. barrel, w't 7¾ lbs., each..... 12 00

No. 9304 32 long caliber, rim fire, 24 in. barrel w't 7¼ lbs...each 10 00

No. 9506 -25-20 caliber, center fire, 26 in. barrel, w't 7¾ lbs.. " 10 00

No. 9508—25-20 caliber, center fire, 28 in. barrel, w't 8 lbs.. " 12.00

This rifle is manufactured to meet the demand for a reliable and accurate rifle at a moderate price. No better or stronger shooting arm can be made for the same cartridges. It is recommended without qualification and fully guaranteed by the makers.

TEN IN A CASE.

FLOBERT.

No. 5104½—22 caliber, Warnant action, 24 in. octagon barrel, shoots 22 caliber short cartridges or bullet caps, rifled, case-hardened mountings, walnut oiled and checked pistol grip stock, scroll and screwed guard, w't 4 to 4½ lbs.....each $3 50

FIFTY IN A CASE.

DAVENPORT'S BROWNIE.

No. G22—22 caliber, rim fire shoots 22 short and long cartridges, 22 in. round blued steel barrel, take down, automatic ejector, case hardened frame, drop-forged steel parts, underlever drop breech block, steel butt plate, finely finished domestic black walnut stock and fore-end, w't 4½ to 4¾ lbs.....each $6 00

QUADRUPLE SILVER PLATED WARE.

No. 2467 Worcestershire Sauce Holder with filled bottle . . . each $4 50

No. 2472—Horseradish Holder, with empty bottle, each $3 50

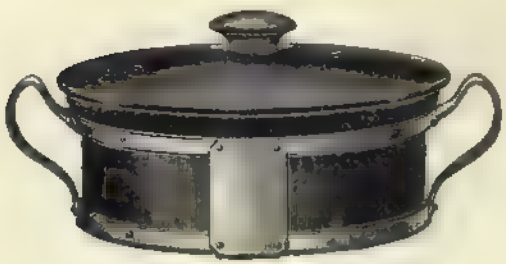
No. 2466—Tobasco Sauce Holder, with filled bottle, each $3 25

No. 2468 -Tomato Ketchup Holder, with filled bottle each $4 25

No. 2470—MacLaren's Cheese Holder, with empty . . . . . each $2.25

No. 6—Coaster, silver, diameter 3 in., per dozen. $13 25

No. 2471—Mustard, with glass lining, each $3 00



No. 5006—Casserole Dish, oval, quadruple silver plated burnished frame with pottery lining, capacity 4 pts. . . . . each $ 8.50
No. 5007—Casserole Dish, oval, quadruple silver plated burnished frame with pottery lining, capacity 6 pts. . . . . each 10.50

No. 5013—Casserole Dish, round quadruple silver plated burnished frame with pottery lining capacity 2½ pts . . . . each $ 9 00
No. 5014—Casserole Dish round quadruple silver plated burnished frame with pottery lining, capacity 3 pts . . . . each 12 00
No. 5015—Casserole Dish, round, quadruple silver plated burnished frame with pottery lining, capacity 5 pts . . . . each 15 00
No. 5019—Casserole Dish, oval, quadruple silver plated burnished frame with pottery lining, capacity 3 pts . . . . . each 10 00
No. 5020—Casserole Dish, oval, quadruple silver plated burnished frame with pottery lining, capacity 5 pts . . . . . each 12 50
No. 5021—Casserole Dish, oval, quadruple silver plated burnished frame with pottery lining, capacity 7 pts . . . . . each 17 50

FIELD GLASSES, MEGAPHONES, MARBLES, ETC.

FIELD AND MARINE GLASSES.

No. 1100.

"LECLERC," Achromatic, Morocco Covered, Metal Body, Bright Finish, with Case and Strap.

No. 1250—19 lignes, length, closed 4½ in., extended 5¾ in., power 4 diameters.....each $ 9.50
No. 1250—21 lignes, length, closed 5¼ in., extended 6½ in., power 4½ diameters.....each 9.90
No. 1250—24 lignes, length, closed 6 in., extended 7¼ in., power 4¾ diameters, each..... 11.00
No. 1250—26 lignes, length, closed 6¼ in., extended 7½ in., power 5 diameters..... 11 50

"COLMONT," "Ranchman's" Glass, First Quality, Achromatic, with Large Eye-Piece, Morocco Covered Body, with Sun Shade, Oxidized Finish, Case and Strap.

No. 1231—21 lignes, length, closed 5¾ in., extended 6½ in., power 4½ diameters.....each $14.00
No. 1231—24 lignes, length, closed 6 in., extended 7¼ in., power 5 diameters.....each 16.10
No. 1231—26 ligne, length, closed 6¼ in., extended 7½ in., power 5½ diameters..... each 18 30

"LEMAIRE'S," Morocco Covered, Metal Body, Bright Finish, Sole Leather Case and Strap.

No. 1100—19 lignes, length, closed 4¾ in., extended 6 in., power 5 diameters..... each $19 10
No. 1100—21 lignes, length, closed 5¼ in., extended 6½ in., power 5¼ diameters..... each 20 60
No. 1100—24 lignes, length, closed 5¾ in., extended 7¼ in., power 5¾ diameters.....each 24 00
No. 1100—26 lignes, length, closed 6¼ in., extended 7½ in., power 6 diameters.....each 25.70
No. 1100B—21 lignes, length, closed 5¼ in., extended 6½ in., 12 lenses, power 5½ diameters..... each 29.00
No. 1100B—24 lignes, length, closed 5¾ in., extended 7¼ in., 12 lenses, power 6 diameters..... each 33 70

"U. S. CAVALRY," Patent Adjustment, Sun Shades, Case and Strap.

No. 1216—21 lignes, length, closed 5 in extended 7 in., power 6 times each $27 10
No. 1216—24 lignes, length, closed 5¾ in., extended 7 in., power 7 times, each..... 33 40

U. S. Cavalry field glasses are constructed with short bodies and long draw tubes, so that while capable of being extended long enough to give the necessary power, they occupy, when closed, a comparatively small compass. They are fitted with a patent adjustment, by means of which they can be always kept at the proper adjustment for the owner's eyes. Having been once adjusted by the screw, as in any ordinary field glass, they can then be closed by simply pushing them together, and when needed, have only to be pulled out, when they are ready for instant use, the adjustment to the eyes having remained undisturbed.

No. 1216, 24 lignes, is recommended as particularly adapted for cavalry and herdsmen.

STENTOR MEGAPHONES.

Waterproof Fibre, Brass Mountings, Nickel Plated Improved Seamless Mouthpiece.

No. 1—15 in., mahogany finish...each $ 2 50
No. 2—30 in., mahogany finish . 4 30
No. 2½—34 in., mahogany finish. 5 1
No. 3—40 in., mahogany finish. 5 90
No. 5—48 in., light terra cotta finish, each..... 10.80
No. 7—60 in., light terra cotta finish, each..... 16.80
Tackle, including rope, pulley and cleat for suspending Nos. 3 and 5.....each 1 30
Stand, for Nos. 3 and 5..... " 4 30
Stand, for No. 7 (to order only)..... " 4 30

Aluminum, Satin Finish, Polished Mouthpiece, and Handle.

No. 11—18 in..... each $5 10
No. 12—34 in. . 7 60

Aluminum throughout, very handsome, but not so durable as the fibre.

Fibre Board, with Enameled Mouthpiece.

No. 25—JUNIOR, 12 in.....per 100 $38 40
No. 30—JUNIOR, 15 in..... 76 80

Stock color reddish brown, but can be furnished in blue, green or crimson at a small additional cost.

RUBBER BALLS.

White, Solid.

No. 5—Diam. 1⅝ in., circm. 5½ in., per dozen..... $0.80
No. 10—Diam. 1⅞ in., circm. 6¼ in., per dozen..... 1 10
No. 15—Diam. 2¼ in., circm. 7 in., per dozen..... 2 00

Hollow.

No. 105—Soft white, diam. 1⅝ in., circm. 5⅛ in.....per dozen $0 80
No. 110—Soft white, diam. 2⅛ in., circm. 7 in.....per dozen 1.60
No. 205—Inflated, red, diam. 2½ in., circm. 8 in.....per dozen 2.20
No. 210—Inflated, red, diam. 2¾ in., circm. 10 in.....per dozen 3.20
No. 215—Inflated, red, diam. 4 in., circm. 13 in.....per dozen 5.20

NO. 215 HALF DOZEN; BALANCE, ONE DOZEN IN A BOX.

MARBLES.

Common, Assorted Sizes.

No. 11—Plain gray .....per thousand $0 52
No. 12—Assorted colors..... " .62
1,000 IN A BAG

China, Painted, Unglazed.

Nos	101	102	103	104
Size	00	0	1	2
Per 1,000	$0 62	.96	1.44	2 04
Nos		106		108
Size		5		4
Per 1,000		$3 10		4 22

100 NOS. 00 TO 3, FIFTY NOS. 4 AND 5, TWENTY-FIVE NO. 6 IN A BOX.

China, Painted, Glazed.

Nos	122	123	124
Size	0	1	2
Per 1,000	$1 90	2.52	3.60

100 IN A BOX

Imitation Agate or Falsies.

Nos	131	132	133
Size	00	0	1
Per 1,000	$1.08	1 54	2 12
Nos	134	135	136
Size	2	3	4
Per 1,000	$2 86	4 12	5.80

100 IN A BOX.

Glass Threads, All Fine

Nos	142	143	144	145	146
Size	0	1	2	3	4
Per 1,000	$5 92	7 12	9.56	13 46	21.42

100 IN A BOX.

Bowlers, Glass Threads.

Nos	151	153	154
Size	6	8	9
Per gross	$8 48	10 94	15.48

ONE DOZEN IN A BOX.

Bowlers, Glass, Fine Figure.

No. 164—Size 7 per gross $ 5 48
No. 165—Size 8 15 54
No. 167—Size 10 23 82
ONE DOZEN IN A BOX.

Brandies.

No. 171—Size 0 .....per thousand $5.02
No. 172—Size 1 ..... " 7.12
No. 173—Size 2 ..... " 9.46
100 IN A BOX.

Tiger Eyes.

No. 1141—Small, assorted per hundred $14 58
TWENTY-FIVE IN A BOX.

Genuine Carnelians.

No. 1001—Small.....per hundred $ 8.82
No. 1002—Medium..... " 15.12
No. 1003—Large..... " 21 42
No. 1121 Small ..... " 22 68
No. 1122—Medium..... " 30 24
TWENTY-FIVE IN A BOX.

Marble Sizes.

Size	00	0	1	2	
Diameter	½	9/16	5/8	11/16	in
Size	3	4	5	6	
Diameter	13/16	1	1 1/16	1 1/8	in
Size	7	8	9	10	
Diameter	1 3/16	1 1/4	1 5/16	1 3/8	in

HALL CLOCKS.

Austrian. St. Regis Manchester Cambridge Berkshire

No. 331 Austrian—Height 82 in., width 20 in., depth 14 in., weight movement, 8 day, half and hour strike, chain wind, brass cylindrical weights, cathedral gongs, brass pendulum, ball and hands, old copper dial with raised brass numerals, glass roundels set in, inlay in door is marquetry of imported colored Austrian woods, finished same as above - - each $120.00

St. Regis Height 81 in., width 25½ in., depth 15 in., weight movement, 8 day, 3 trains, solid steel pinions, second beat pendulum, chiming the Westminster chimes on cathedral gongs at each quarter hour, and striking the hour on a deep gong after the fourth quarter, brass bob, weights and hands, bevel glass in door, old copper dial, raised brass numerals, old copper trimmings, finished in Weathered, Flemish, Fumed, Austrian, Early English, Antwerp and golden oak waxed, Antwerp oak dull, and Antwerp and golden polish, on quartered oak, - - - - - - - - - - - - - - - - each 200 00

Manchester Height 85 in., width 27 in., depth 14 in., weight movement, 8 day, 3 trains, solid steel pinions, second beat pendulum chiming Westminster chimes on cathedral gong at each quarter hour, and striking the hour on a deep gong after the fourth quarter, brass bob weights and hands, bevel glass in door, dial and decorations are inlay marquetry of imported colored Austrian woods, case is solid mahogany, finished polish or dull, - - - - - - - - - - - - each 230 00

Cambridge Height 81 in., width 27 in., depth 16 in., weight movement, 8 day, 3 trains, solid steel pinions, second beat pendulum chiming Westminster chimes on cathedral gongs at each quarter, brass bob weights, and hands, bevel glass in door, mahogany dial with inlaid brass numerals, solid mahogany case, polish or dull finish, - - - - - - - - each 250.00

Berkshire—Height 100 in., width 28 in., depth 21 in., 5 tube, weight movement, 3 trains, heavy brass plates, first class English construction, 8 day, quarter chime, Westminster bells on patent tabular bells, dead beat escapement, maintaining power, solid steel pinions, patented piano-action hammers, repeating lever put-on beat attachment, lever suspension steel rod, brass pendulum bob and weights, heavy brass dial with raised hour and second, moon phase in silver finish, raised hour numerals in brass, corner ornaments in pierced brass, blue steel serpentine hands, solid mahogany case, dull or polished finish, - each 500 00

Berkshire 9 tubes and same style movement rendering Westminster or Whittington chimes at each quarter, otherwise same as above, - each 550 00

Always state finish wanted.

CUCKOO CLOCKS.

No 62.

TRADE G.K. MARK

Imported Direct from the Black Forest (Schwarzwald), Germany.

The carving of these clocks is done by hand by the natives of the Black Forest, and is especially fine. The figures are accurate and life-like.

The fronts of these clocks are made of three pieces of wood of opposite grain, and are sat together to prevent warping and cracking

The movements are made of the best tempered steel and brass with screw pillars, patent ratchet wheels, new escape wheel, and are well finished and adjusted. The same are guaranteed to be correct timekeepers.

Every clock that leaves the factory has been run and thoroughly tested, and is warranted, if properly used, to be a good timekeeper. Should a case crack or split, it will be exchanged or repaired without charge, if transportation charges are prepaid.

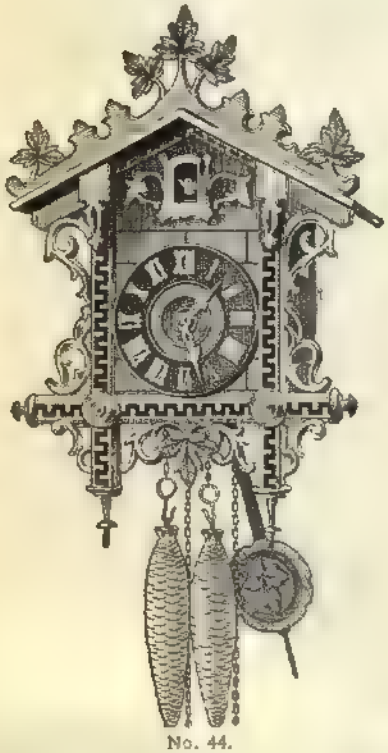
All genuine Black Forest Cuckoo Clocks are stamped with the above Trade Mark.

No. 64.

No. 62 —Miniature (not cuckoo), height 7 in., width 4½ in., case made of papier mache and wood pulp, unbreakable, solid brass movement, first quality, walnut color only, - - - - - - - - - - - - - - - each $0.84

No. 62½—Miniature, hand carved, height 7 in., width 4½ in., wood front, old style movement, walnut or oak colors, - " 76

No. 64 Miniature (not cuckoo), hand carved, height 8 in., width 5½ in., solid walnut front with first quality brass movement, " 1.20



No. 44.

No. 35E.

No. 55.

No. 44 Cuckoo, hand carved, height 19 in., width 12 in., half hour strike and call, German walnut or oak, with inlaid ash, ebony and mahogany ornaments, small size movement, front of case made of three layers of wood, - - - - - each $8.20

No. 35E—Cuckoo, hand carved guaranteed height 15 in., width 10 in., dial 4½ in., half hour strike and call, imitation walnut case, with inlaid ash, ebony and mahogany ornaments, small size movement, - - - - - - - each 5.50

No. 55 —Cuckoo, hand carved height 21 in., width 14 in., dial 5 ½ in., half hour strike and call solid walnut or oak case, with inlaid ash, ebony and mahogany ornaments, large size G K. movement front of case made of three layers of wood, each 9.30

STRIKING BAGS AND PLATFORMS.

STRIKING BAGS.

Nos. 17B, 18B and 24B.

Nos. 21B 22B, 25B and 26B.

No. 17B—"Rev o-noc," *gymnasium special*, made for hard and rough usage, made of selected pearl cowhide, welted and covered seams, warranted durable and perfect shape, pure gum bladder, per dozen, - - - - - - $60.00

No. 18B—"Rev-o noc," professional size, extra quality oil tanned brown horsehide, leather welted and covered seams, a very strong and durable bag, 34 in pure gum bladder, - - per dozen 48 00

No. 21B—"Rev-o-noc," best brown calf, welted seams, perfect shape, will stand very rough usage, 32 in., pure gum bladder, - - - - per dozen 48 00

No. 22B—"Rev-o-noc," wine colored Yucatan kid, tan colored top with eyelets, white leather welted seams, triple stitched and stayed, canvas lined, rawhide loop, regulation size, extra fine bag, pure gum bladder, - per dozen 39 00

No. 24B—"Rev-o noc," professional size, best grade black leather, leather welted seams, made in the best and most attractive manner, pure gum bladder, per dozen, - - - - - - 36 00

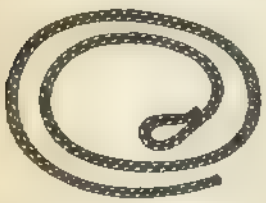
No. 25B—"Rev-o-noc," olive Yucatan kid, wine colored leather top circle with eyelets, triple stitched and stayed, canvas lined, rawhide loop, regulation size, - - - - per dozen 30 00

No. 26B—"Rev-o-noc," red kid, triple stitched, medium size, canvas lined, very strongly made, pure gum bladder, - - - - - per dozen 24 00

No. 26½—"Cruso," amateur size, good grade wine colored tan leather, with double leather top and bottom, pure gum bladder, - - per dozen 21 00

No. 27B—"Cruso," yellow colored sheep skin, canvas lined, rawhide loop, medium size, good bladder, - per dozen 18 00

STRIKING BAG CORDS.



No. 5—4 ft., mercerized silk finished with looped ends, - - - per dozen $6.00

No. 4—3 ft., cotton finished heavy cable with looped ends, - - per dozen 4.20

No. 3—3 ft., cotton finished medium cable with looped ends, - - per dozen 3.60

No. 2—3 ft., cotton finished light cable with looped ends, - - - per dozen 3 00

STRIKING BAGS.

Nos. 14P and 15P.

No. 16P.

"Rev-o-noc," Pear Shape.

No. 14P—"Rev-o-noc," *professional*, finest specially selected pearl calf skin, leather welted and covered seams, made specially for professional bag punchers, w't without bladder 7 to 8 oz., pure gum bladder, - - per dozen $72 00

No. 15P—"Rev-o-noc," *exhibition*, extra light, made of selected black kid leather, seams triple stitched, welted and stayed, rawhide swivel top, hand sewed, canvas lined, 32 in. in circumference, complete with pure gum bladder, guaranteed, - - per dozen 66 00

No. 16P—"Rev-o-noc," made of California napa kid, olive or tan color, seams triple stitched and stayed, solic leather swivel top, canvas lined, 32 in. in circumference, complete with pure gum bladder, guaranteed, per dozen 42.00

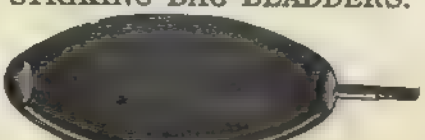
Double End.

No. 64DE—"Rev-o-noc," professional size special selected red kid leather, made specially attractive with leather welted and covered seams, pure gum bladder, - - - per dozen $33 00

No. 66DE—"Rev-o-noc," made of red tanned calf skin, canvas lined seams triple stitched and stayed with linen thread, folded rawhide loop, per dozen 27 00

No. 68DE—"Cruso," green California napa kid, canvas lined, rawhide loop, medium size, good quality bladder, per dozen, - - - - - 18 00

STRIKING BAG BLADDERS.



No. 9—Small size, - - per dozen $6 50

No. 10—Medium size, - - " 7 50

No. 11—Large size, - - - " 8 50

STRIKING BAG PLATFORMS.

Peerless Standard.

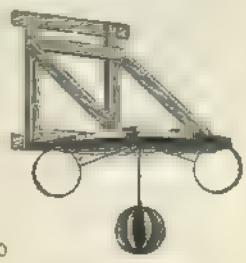
No. 10—Highly polished selected maple disc and cross bars, malleable iron ends closely fitted, 1 in. standards with flange, neatly japanned, complete with steel guy ropes, turnbuckles, patent ball swivel with removable socket, *without bag*, w't 100 lbs., - - each $30.00

No. 4 Heavy cast frame, enameled, 2 forged steel brace rods, attached with screws, polished ash head, adjustable with set screw, can be raised or lowered 6 inches, special reinforced bag, very fast and strong, pure gum bladder, designed for gymnasium and professional use, w't complete 20 lbs., - - - - each $10 00

ONE IN A BOX.

Victor 20th Century.

No. 3—Enameled cast frame, forged steel brace rod polished ash head, secured to door frame or wall by screws, adjustable in height by reversing brace rod and angle iron, special tanned bag with pure gum bladder, w't complete 12 lbs., - - - - - each $8.00



No. 24—Chicago, wood, braced and is so constructed that the platform can be raised or lowered after it is fastened to the wall, height 6 ft. 9 in., *without bag*, w't 00 lbs., - each $6 00

No. 26 Metal braces, with swivel *without bag*, not adjustable, w't 00 lbs., each, - $5.00

This platform is strongly built and will stand rough usage.

INDOOR UNIFORMS AND BOXING GLOVES.

"REV-O-NOC" INDOOR BASE BALLS.

No. 117—"Rev-o-noc," Chicago regulation, 17 in., soft oil tanned horse hide cover, perfect sewing, - per dozen $15.00
No. 112—"Rev-o-noc," official, 12 in hard oil tanned horse hide, perfect sewing, per dozen, - - - - - 10.00
No. 114—"Rev-o-noc," 14 in., otherwise same as No. 112, - - per dozen 12.00
No. 116—"Rev-o-noc," 16 in., otherwise same as No. 112, - - per dozen 15.00
No. 214—"Rev-o-noc," 14 in., hard sheep skin cover perfect sewing, per dozen 10.00
No. 216—"Rev-o-noc," 16 in., otherwise same as No. 214, - - per dozen 13.00

ONE IN A BOX.

INDOOR BASE BALL BATS.

No. 300—Regulation size, finest selected second growth hickory, flame burnt finish, tape wound handles, highest grade bat made, - - per dozen $6.00

INDOOR BASES.

Factory Shipments Only.

No. 1—Heavy 10 oz. duck, extra well sewed, - - - per set of three $3.00
No. 2—8 oz. duck, otherwise same as No. 1, - - - per set of three 2.50
No. 3—Home plate, fine, corrugated rubber, 12×12 in., - - - each 1.00

INDOOR UNIFORMS.

To Order Only.

No. 5—Special League, made of strong durable flannel, woven for indoor, suit consists of pants, shirt and cap, any style hose and belt, - complete $7.20
No. 7—City League, made of best wearing flannel, suit consists of pants, shirt and cap any style hose and belt, - complete 6.00

IN ORDERING UNIFORMS STATE

Style shirt wanted, whether button or lace front.
Style pants wanted, whether plain or padded, elastic or tape bottom.
Style cap wanted.
Stockings, color wanted.
Sample color card and measurement blanks furnished on application.

Are made from the very best material obtainable in their respective grades and are especially woven for athletic purposes. The most desirable colors have been selected, which, combined with the high standard of workmanship, enables us to guarantee satisfaction.

Special attention is given to trimmings and other details in designing. Each uniform lettered with name of club. Eight letters, either 3 or 4 in., without extra charge.

MEN'S BOXING GLOVES.

No. 52C—"Rev-o-noc," Corbett pattern, finest quality tan kid improved palm grip, padded wrist roll, all silk stitched, leather lined, leather bound wrist, stuffed with best quality curled hair, per dozen sets, $72.00

No. 49C—"Rev-o-noc," Corbett pattern, extra fine sage green kid leather, heavily padded thumb and padded cuffs, safety palm pad, filled with extra quality curled hair. Well made and nicely finished. A very popular glove, per dozen sets, - $66.00

No. 46C—"Rev-o-noc," Corbett pattern, extra large size, good quality Benton red kid leather, heavily padded thumb and wrist, filled with extra curled hair, an excellent glove for light work, per dozen sets, - - $54.00

No. 55F—Rev-o-noc," *regulation Fighting* made of especially tanned California green napa, padded and deep laced wrist, patent sliding grip to prevent slipping, guaranteed 5 oz., per dozen sets $48.00

No. 45C—"Rev-o-noc," *Instructors.* Corbett pattern, wine colored kid double stitched, laced wrist, padded palm grip, serge lined, stuffed with good quality curled hair, made especially for gymnasium work wt 5 oz per dozen sets, - $

No. 41C—"Rev-o-noc," special, Corbett pattern, made of black color selected calf, serge lined, tan leather bound, stitched, laced and padded wrist, palm grip, stuffed with best quality curled hair, extra fine glove, per dozen sets, - - $

MEN'S BOXING GLOVES.

No. 40S—"Rev-o-noc," standard pattern (improved), green napa kid, with palm grip, laced wrist, padded and bound, stuffed with cured hair per dozen sets, - $36.00

No 19F—"Cruso," regular pattern, brown colored leather hair filled, laced wrist, a full sized man's glove and an exceptional strong value, per dozen sets, $24.00

No. 16F—"Cruso," standard pattern, good quality leather, elastic wrist band, filled with hair, per dozen sets, - - $18.00

BOYS' BOXING GLOVES.

No. 14B—"Rev-o-noc," Corbett pattern, wine colored kid back tan kid palm and cuffs, with palm grip, laced wrist, padded serge lined, double stitched throughout leather bound, stuffed with best quality curled hair, per dozen sets, $

No. 13B—"Cruso," regular pattern, sage green California napa leather back, wine colored leather palm, hair filled, laced wrist, improved padded palm grip, a most excellent medium grade glove, per dozen sets, - $21.00

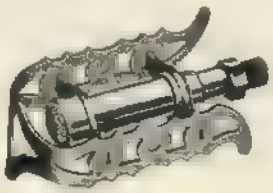
No. 11B—"Cruso," standard style, good quality leather, elastic wrist band, filled with hair, per dozen sets $

BICYCLE PEDALS, TOE CLIPS, ETC.

BICYCLE PEDALS.

No. 0—STANDARD, men's rat trap, extra quality full polished, w't per pair 14 oz.....per pair $1 00
No. 0C—STANDARD, women's, combination, with pedal rubber, otherwise same as No. 0, w't per pair 16 oz....per pair 1.15

No. 5—GENESEE, men's, rat trap, nickel plated and polished, w't per pair 14 oz., per pair..... $1 00
No. 6—GENESEE, men's, combination, with pedal rubbers, otherwise same as No. 5, w't per pair 16 oz.....per pair 1 25



No. 1—STANDARD, men's, rat trap, heavily nickel plated and polished, w't per pair 14 oz..... per pair $1.25
No. 1C—STANDARD, women's, combination, with pedal rubbers, otherwise same as No. 1, w't per pair 16 oz ....per pair 1 50

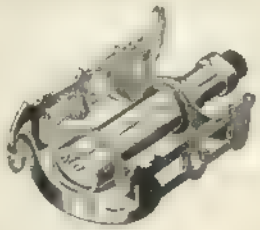
No. 2J STANDARD, juvenile, boys' rat trap, nickel plated and polished, w't per pair 10 oz ..... per pair $1 50
No. 2JC—STANDARD, juvenile girls' combination, with pedal rubbers, otherwise same as No. 2J, w't per pair 12 oz. per pair..... 1 75

Bridgeport, Heavily Nickel Plated and Polished, Very Strong.

No. 2B—Men's, rat trap, w't per pair 14 oz..... per pair $1 50
No. 2BC—Men's, combination, with pedal rubbers, w't per pair 16 oz.....per pair 1 75
No. 2½B—Women's, combination, with pedal rubbers, w't per pair 16 oz., per pair..... 1 75

ONE PAIR IN A BOX.

BICYCLE PEDALS.



No. 4R—STAR, racing, men's extra quality, heavily nickel plated and polished, w't per pair 12 oz.....per pair $2 00

Star, Extra Quality, Nickel Plated, Full Polished, Finest Finish, Special.

No. 3S—Men's, rat trap, w't per pair 14 oz .....per pair $2 00
No. 3SC—Men's, combination with pedal rubbers, w't per pair 16 oz per pair 2 25
No. 3½S—Women's, combination, with pedal rubbers, w't per pair 16 oz., per pair..... 2 25

ONE PAIR IN A BOX.

TOE CLIPS.

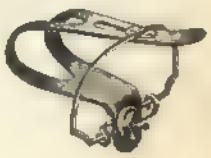
No. 1—Spring steel, nickel plated, w't per doz. pairs 1½ lbs.....per dozen pairs $1 50

No. 7—STANDARD STAR, nickel plated steel highly polished, w't per doz. pairs 2¼ lbs. per dozen pairs $2.40

No. 3—THIEM'S, crucible steel wire, well braced, nickel plated, w't per doz. pairs 2¼ lbs.....per dozen pairs $2 50

ONE DOZEN PAIRS IN A BOX.

TOE CLIPS.



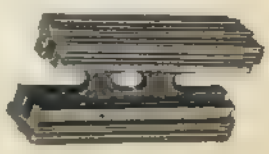
No. 6—THIEM'S, sheet steel, with wire side guards nickel plated, w't per doz. pairs 3¼ lbs per dozen pairs $2 75

No. 2—THIEM'S, crucible steel wire, well braced, sheet metal foot rest, nickel plated, w't per doz. pairs 3⅞ lbs., per dozen pairs..... $2 75

No. 8—SAGER, nickel plated tempered spring steel, highly polished, w't per doz. pairs 4 lbs.....per dozen pairs $4 80

ONE DOZEN PAIRS IN A BOX

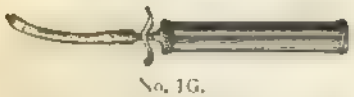
PEDAL RUBBERS.



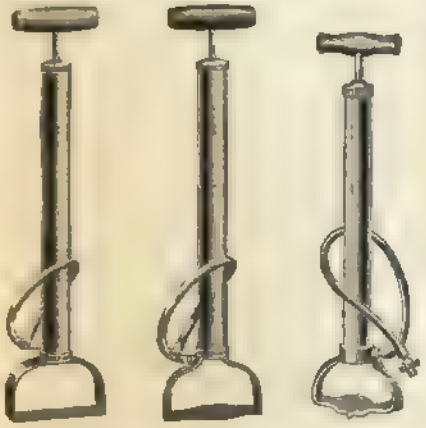
No. 14—Automatic, steel lined, can be attached or detached at will, no screws to work loose, will fit almost any pedal, w't per doz. sets 1⅝ lbs per dozen sets $3 00

TIRE PUMPS AND SUNDRIES.

TIRE PUMPS.



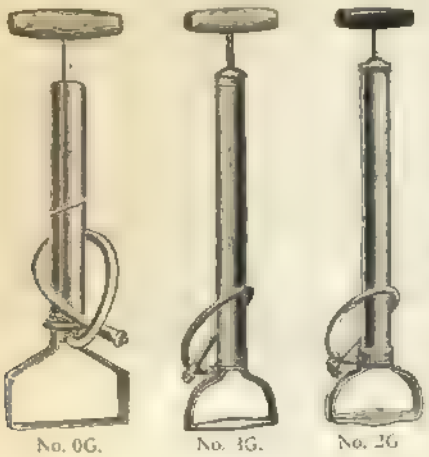
No. 1G.



No 00G. No 03G. No 12G

Seamless Steel Cylinder, Nickel Plated and Polished, Rubber Hose.

No. 1G—Small hand, ⅞×5 in., swivel coupling, w't per doz. 1⅜ lbs. per dozen $1.80
No. 00G—1¼×12 in., steel stirrup, swivel coupling, w't per doz. 11¼ lbs., per dozen . . 5 00
No 03G—1¼×12 in., cast stirrup swivel coupling, w't per doz. 14½ lbs., per dozen. 6 00
No. 12G—1¼×12 in., cast stirrup, fitted with never leak nipple, w't per doz. 14 lbs. . . . . per dozen 6 00

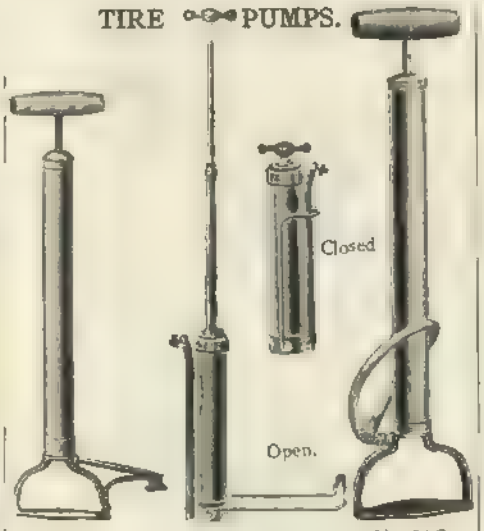


No. 0G. No. 3G. No. 2G

Seamless Brass Cylinder, Heavily Nickel Plated, Highly Finished, Swivel Coupling, Best Rubber Hose.

No. 0G—1¼×12 in., solid top, screws to base, steel stirrup, w't per doz. 10½ lbs., per dozen $6 00
No. 3G—1¼×12 in., cast stirrup screw-off top, screws to base, w't per doz. 15 lbs. . . . . per dozen 6.50
No. 2G—1¼×12 in., steel stirrup screw-off top, right angle swivel coupling, w't per doz. 12 lbs. . . . . per dozen 7 50

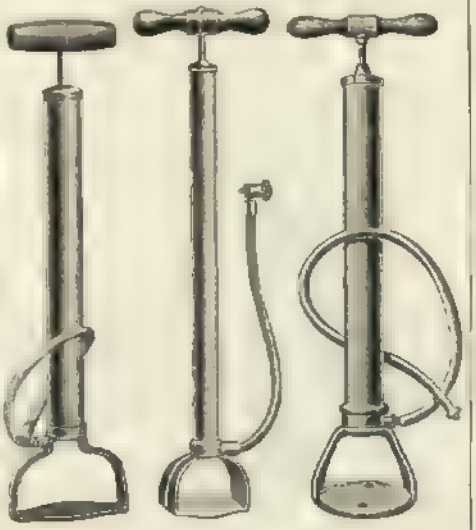
TIRE PUMPS.



No. 9G. No. 14G. No. 01G

Seamless Brass Cylinder, Nickel Plated and Highly Finished.

No. 9G—Banner, 1¼×12 in., self-adjusting valve coupling brass connecting tube with cushion spring, improved stirrup and spring washer to plunger, w't per doz. 15 lbs. per dozen $ 9.00
No. 14G—Giant, foot, 1×6½ in., fits any tool bag or pocket, w't per doz. 10 lbs. . . . . per dozen 9 00
No. 01G—1¼×20 in., cast stirrup, swivel coupling, good quality rubber hose, w't per doz. 24 lbs. . . . . per dozen 10 00



No. 11G. No. 10G. No. 7G.

Heavy Seamless Cylinder, Heavily Nickel Plated and Polished, Best Rubber Hose, Swivel Coupling, Cast Stirrup.

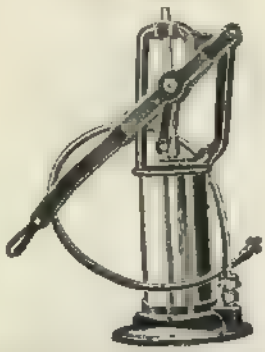
No. 11G—1¼×18 in., brass screw-off top, w't per doz. 17½ lbs. per dozen $11 00
No. 10G—Red Devil, 1¼×20 in., brass, screw-off top, special swivel coupling, w't per doz. 27 lbs. . . . . per dozen 22.00
No. 7G—1¼×20 in., steel, cast brass screw-off top, heavy cast base, w't per doz. 44 lbs. . . . . per dozen 24 00

TIRE PUMP TUBING.

Rubber, Cloth Inserted.

Inch.	⅛	¼	¼	⅜
Per foot	$0 10	.10	16	2[illegible]

TIRE PUMPS.



No. 15G—Cyclone Lever, 3×6 in., plated brass cylinder, cast iron japanned frame and base, very best rubber hose, swivel coupling, very powerful and especially adapted for bicycle and repair shops, w't per doz. 114 lbs., per dozen $72 00

No. 35G—Hand Telescope, length 10¼ in., nickel plated brass, attaches to frame with clip, w't per doz. 4½ lbs., per dozen. $7.80
No. 23G—Extra hose for the above, per dozen. 1.20

PUMP COUPLINGS.

No. K1G—For hose, to attach to pump, per dozen $0.50

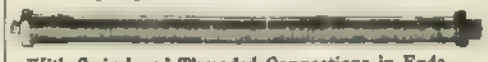
SWIVEL CONNECTIONS.

No. K3. No. 30.

No. K3—Patent swivel, fitting M. & W., Schrader and similar valves . per dozen $0 75
No. 30—Won't Leak, large right angle, fits all valves, very efficient per dozen 2 50

PUMP HOSE.

No. 24G—3 in., good quality rubber, for hand pumps. . . . . per dozen $0.90



With Swivel and Threaded Connections in Ends, Good Quality Rubber.

No. 12G—12 in., for foot pumps, per dozen $2 25
No. 18G—18 in., for foot pumps " 2 75

TIRE PUMP LEATHERS.

Sizes	1½	1¼	1⅛	1	⅞ in.
Per dozen	$0 40	[illegible]	30	.24	.20
Per 100	3 [illegible]	[illegible]	1 40	1.20	1 00

THE SIZE GIVEN ON TIRE PUMPS IS THE LENGTH AND DIAMETER OF THE CYLINDER

ELECTRIC HEATING APPLIANCES.

HOT WATER URNS.

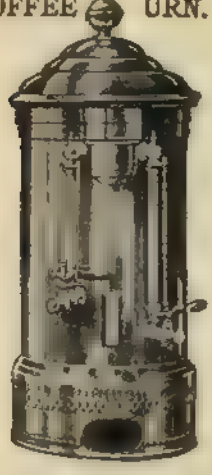
No. 4320E—3 gal., made of heavy copper, finished in nickel, double tin lining, fitted with gauge glass thermometer and tumbler warmer arrangement, 6 ft. of flexible cord and porcelain three-heat plug switch, w't crated 24 lbs.★.....each $37 00

No. 4325E—3 gal., otherwise same as No. 1320E, w't crated 25 lbs ★.....each 54 00

No. 4330E—5 gal., otherwise same as No. 4320E, w't crated 45 lbs★..each 68 00

The heaters are all arranged for three heats. The maximum to bring the water to boil. The minimum heat, one-quarter of the maximum, to keep the water at the boiling point.

COFFEE URN.



0 to 250 Volts.

No. 4420E—10 qt., 1400 watts, w't 80 lbs.★.....each $ 95.00

No. 4430E—14 qt., 2000 watts, w't 105 lbs ★.....each 110.00

No. 4440E—22 qts., 3200 watts, w't 115 lbs ★.....each 140.00

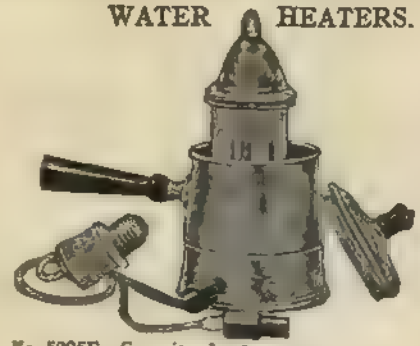
No. 4450E—30 qts., 4200 watts, w t 150 lbs ★.....each 170 00

The heat is accomplished by a new type of plug heater fitted, attached to the bottom of the urn, the plate containing the 'Steel Clad' elements. The heaters are all arranged for three heats. The maximum to bring the water to boil. The minimum heat, one-quarter of the maximum, to keep the water at the boiling point.

Are made in the best possible manner of heavy copper. The coffee receptacles are of stoneware. The urns are fitted with double gauge glasses, faucets, thermometers, etc., and are finished in polished nickel.

The receiver with cotton fabric filter is simple and easily arranged

WATER HEATERS.



No. 5205E—Capacity 1 pt., max. watt cons. 275, made of spun copper, finished in nickel or copper, double silver lined, ebonoid handles, and equipped with replaceable heating elements, with detachable 6 ft. silk cord, plug contacts, and separable attachment plug, without bottle, unless specially ordered, w't 2 lbs.★.....each $10 00

No. 5215E—Capacity 1 qt., max. watt cons. 400, made of spun copper, finished in nickel or copper, double silver lined, ebonoid handles, and equipped with replaceable heating elements, with detachable 6 ft. silk cord, plug contacts and separable attachment plug, without bottle, unless specially ordered, w't 3½ lbs★..each $12.00

COFFEE PERCOLATORS.

Universal.

No. 2208E—Capacity 8 cups, empire type, watts 350 ★ each $15 00

No. 2209E—Capacity 9 cups, Empire type, watts 350 ★ . . . . . each 16 50

No. 2214E—Capacity 14 cups, Empire type, watts 350 ★.....each 18 00

This type, the well-known "Universal," equipped with disc stoves (No. 3210-E). The percolator and heater are separate. The stove heats quickly and the percolator begins to pump within a short time after the current is turned on. The stove is finished in polished nickel. The percolator is made entirely of aluminum. Furnished complete with six feet of detachable cord, and attachment plug.

COFFEE MACHINE.

Universal, 325 Watts.

No. 2204E—Round type, capacity 4 cups ★.....each $22.00

No. 2006E—Round type, capacity 6 cups★.....each 24.00

No. 2009E—Round type, capacity 9 cups★.....each 26 00

No. 2104E—Fluted type, capacity 4 cups ★.....each 26 00

No. 2106E—Fluted type, capacity 6 cups ★.....each 28 00

No. 2109E—Fluted type capacity 9 cups ★.....each 30 00

This type of percolator, is the well-known "Universal," permanently equipped with special "American Steel Clad" heating elements. It produces incomparable results. This machine will operate better than any other type, as the heating elements are attached directly to the automatic valve in the bottom of the machine. Only a small volume of the water is heated in the valve chamber at any one time. It will begin to pump in about one minute after the current is turned on. The interior surface being plain and smooth, it is very easy to keep in perfect condition. Every percolator is fully equipped with detachable cord, and is ready for instant service.

CHAFING DISHES.

No. 335E—2 pints, nickel plated, 500 max. watts, w't 16 lbs ★ .....each $22.50

No. 345E—3 pints, nickel plated, 500 max. watts w t 16 lbs ★.....each 25 00

No. 337E—2 pints, silver plated, 500 max. watts, w't 16 lbs ★ .....each 33.00

No. 347E—3 pints, silver plated, 500 max. watts, w't 16 lbs.★.....each 37 00

Made of heavy spun copper, finished in polished nickel or copper as desired, double tin lined, ebonoid handles. The stove is standard 6 in. top, with "Steel Clad" elements attached. A quick heater, has adjustable legs so that it may be used on any standard chafing dish by simply removing the alcohol stove and putting the electric stove in its place.

Three heats may be obtained and the minimum heat is used to do the cooking as soon as the water has begun to boil.

Furnished complete ready for attachment to circuit, with detachable 6 feet silk cord, plug contacts and attachment plug.

Polished nickel always shipped unless otherwise ordered.

★FOR SHIPMENT FROM FACTORY ONLY. VOLTAGE DESIRED MUST BE SPECIFIED IN ORDERING.

ELECTRIC SAD IRONS AND TOASTERS.

GENERAL INFORMATION.

VOLTAGES--Voltage desired must be specified in ordering and the device should not be connected to circuit if the voltage varies more than 5 or 6 volts. In order to obtain best results, the voltage of the circuit must be up to that marked on the device. If it is not, the amount of current flowing through it is lessened and the full heat is not obtained. If the voltage is too high more current flows through than should and the tendency is to overheat with the danger of burning out.

Care must be exercised in this respect.

REMOVABLE AND REPLACEABLE ELEMENTS—We have most of our devices with a removable and replaceable heating element, so that it is unnecessary to return a device in case repairs are needed.

It is impractical to construct all apparatus in this way, but all flat irons and devices of that kind are so supplied.

GUARANTY—We guarantee all of these devices to be free from inherent defect in material and workship and will replace any element or part shipped on our orders which is defective, providing of course that the trouble is not due to misuse or neglect on the part of the user.

SAD IRONS.

Superior "V" Shape.

No. 6E—Size 6½×4 in., 475 watts, 0 to 125 volts, w't 6 lbs. ..... each $7 50

No. 36E—125 to 250 volts, otherwise same as No 6E. ..... each 8 50

Each iron is furnished complete with detachable plug, 6 ft. conductor cord, separable plug and lamp socket attachment, coil spring for cord support and special heat insulating stand

ONE IN A BOX

American Steel Clad, "V" Shape.

No. 3E—Travellers', size 5½×2¾ in., 250 watts, 0 to 125 volts w't 3 lbs. each $ 8.50

No. 13E—Travellers', 125 to 250 volts, otherwise same as No. 3E ..... each 9 50

No. 5E—Apartment, size 5¾×3½ in. 350 watts, 0 to 125 volts, for light work, w't 5 lbs. ..... each 9 00

No. 15E—Apartment, 125 to 250 volts, otherwise same as 5E ..... each 10 00

No. 7E—Laundry, size 5⅞×3⅞ in. 900 watts 0 to 125 volts, w't 7 lbs. each 9 00

No. 17E—Laundry, 125 to 250 volts, otherwise same as No. 7E. ..... each 10 00

All irons finished in nickel, ebonized handle, 6 ft. cord and stand. Attachment plugs are furnished with Nos. 3E to 7E. Are constructed so the steel slug or heating element can be instantly removed by loosening the screws. The heat is concentrated in the bottom of the iron. The asbestos heat retaining wall prevents loss of energy through radiation. New elements can be replaced when necessary without returning irons

ONE IN A BOX.

SAD IRONS.

American Steel Clad "V" Shape.

No. 9E—Standard Laundry, size 6½×4¼ in., 700 watts, 0 to 125 volts, w't 9 lbs. ..... each $11.50

No. 19E—Standard Laundry, 125 to 250 volts otherwise same as No. 9E, each. 12 50

No. 26E 16V)—Pant, 8½×5¾ in., 800 watts 0 to 125 volts, w't 16 lbs., each★ 19.00

No. 126E—Pant, 125 to 250 volts, otherwise same as No. 26E★ ..... each 20 00

No. 28E(20V)—Slightly heavier than No. 26E, size 8½×5¾ in., 900 watts, 0 to 125 volts, w't 20 lbs★ ..... each 20 50

No. 128E—125 to 250 volts, otherwise same as No. 28E★ ..... each 21.50

These are very large and are designed and adapted for the use of manufacturers, and made to give a large volume of heat, and are adapted for heavy work of all kinds.

ONE IN A BOX

ELEMENTS FOR SAD IRONS.

No. 16E—For No. 6E, 0 to 125 volts, each $3 00

No. 37E—For No. 36E, 125 to 250 volts, each 4.00

No. 113E—For Nos. 3E, 5E and 7E, 0 to 125 volts, w't 1½ lbs ..... each 3.00

No. 123E—For No. 13E, 125 to 250 volts w't 1 lb. ..... each 3 50

No. 215E—For Nos. 15E and 17E, 125 to 250 volts, w't 1½ lbs. ..... each 4 00

No. 209E—For No. 9E, 0 to 125 volts w't 2½ lbs. ..... each 4.00

No. 219E—For No. 19E, 125 to 250 volts, w't 2½ lbs. ..... each 5 00

No. 212E—For Nos. 12E and 16E, 0 to 125 volts, w't 2½ lbs. ..... each 6 00

No. 320E—For No. 20E, 0 to 125 volts, w't 3½ lbs ..... each 6 50

No. 322E—For Nos. 112E and 16E, 125 to 250 volts, w't 2½ lbs ..... each 7 00

No 420E—For Nos. 220E, 24E, 26E and 28E, 0 to 125 volts w't 4 lbs ..... each 7 00

No. 422E—For No. 120E, 125 to 250 volts, w't 3½ lbs. ..... each 7.50

No. 424E—For Nos. 222E, 124E, 126E and 128E, 125 to 250 volts, w't 4 lbs., each. 8.00

SAD IRONS.

American Steel Clad, Tailors.

No. 12E—Light, size 9½×3¼ in., 625 watts, 0 to 125 volts, w't 12 lbs★ each $16.50

No. 112E—Light, 125 to 250 volts, otherwise same as No. 12E★ ..... each 17 50

No. 16E—Medium, size 9½×3¼ in., 625 watts, 0 to 125 volts, w't 16 lbs., each★ 18 00

No. 116E—Medium, 125 to 250 volts, otherwise same as No. 16E★ ..... each 19.00

No. 20E—Standard, size 11×3¾ in., 700 watts, 0 to 125 volts w't 20 lbs., each★ 20 00

No. 120E—Standard 125 to 250 volts, otherwise same as No. 20E★ ..... each 21.00

No. 220E(20 H P)—Size 11×3¾ in., 1000 watts, 0 to 125 volts, w't 20 lbs., each★ 20 50

No. 222E—125 to 250 volts, otherwise same as No. 220E★ ..... each 21 50

No. 24E—Heavy, size 11×4 in., 1000 watts, 0 to 125 volts, w't 24 lbs★ each 21 50

No. 124E—Heavy, 125 to 250 volts, otherwise same as No. 24E★ ..... each 22 50

Designed especially for manufacturers' work, and should not be attached to lamp sockets, but wired specially. Are constructed so the steel slug or heating element can be instantly removed.

ONE IN A BOX.

ELECTRIC TOASTER.

No. 5810E—Size 5½×5¾×9¾ in., 350 watts, 0 to 250 volts, w't 4½ lbs. each $10.00

Furnished complete with 6 ft. detachable silk cord, plug contacts and attachment plug.

Is designed for making toast on the breakfast table or for afternoon tea, and absolutely free from odor, dirt and danger of fire.

★*FOR FACTORY SHIPMENT ONLY. VOLTAGE DESIRED MUST BE SPECIFIED IN ORDERING*

PEARL BAITS.

"REV-O-NOC" SPINNERS.

No. C4 REV-O-NOC—Colorado, ¾ in. pearl blade, size 12 hollow point treble hooks, two brass barrel swivels...per dozen $3.00

No. C5 REV-O-NOC—1 in. pearl blade, otherwise same as No. 4 REV-O-NOC...per dozen 3.30

ONE ON A CARD; ONE DOZEN IN A BOX.

No. 68 REV-O-NOC.

No. 69 REV-O-NOC.

No. D5 REV-O-NOC.

No. 68 REV-O-NOC—Bass, 1⅛ in. pearl blade, mounted on piano wire, patent reversible carrier, split ring.....per dozen $2 50

No. 69 REV-O-NOC—Bass, 1⅛ in. pearl double blades, mounted on piano wire, patent reversible carrier, split ring per dozen 5 00

No. D5 REV-O-NOC—Two 1 in. pearl blades, on silvered piano wire, brass swivel, split ring, size 2 treble hook, per dozen 6.00

ONE ON A CARD; ONE DOZEN IN A BOX.

"REV-O-NOC" PEARL KIDNEY.

No. 1914 REV-O-NOC.

Nos. 1915 REV-O-NOC and 1916 REV-O-NOC

Fine Quality, Concave Pearl Blade, Metal Eyelet, Mounted on Brass Box Swivel and Finely Feathered Hollow Point Treble Hooks.

No. 1914 REV-O-NOC —Sizes	2	3	4
Size spoon	1¼	1½	2 in
Per dozen	$3.80	3.80	4.50

No. 1914 REV-O-NOC —Sizes	5	6	8
Size spoon	2⅛	3	3¼ in.
Per dozen	$5.00	5.50	7.50

No. 1915 REV-O-NOC—1¼ in., *double spoon*, per dozen $5 30

No. 1916 REV-O-NOC—1½ in., *double spoon*, per dozen 5.30

NO. 1914 REV-O-NOC SIZES 6 AND 8, ONE-QUARTER DOZEN; BALANCE, HALF DOZEN IN A BOX.

"REV-O-NOC" PEARL WABBLERS.

No. P7 REV-O-NOC—Bass, 2 in. pearl blades, hollow point treble hooks, brass box swivel, split rings, interchangeable, per dozen $4.00

No. P9 REV-O-NOC—Pickerel, 2¾ in. pearl blades, otherwise same as No. P7 REV-O-NOC per dozen 4.50

No. P10 REV-O-NOC—Muskellunge, 3¼ in. pearl blade, otherwise same as No. P7 REV-O-NOC per dozen 5.30

The pearl blades are made especially for us with brass eyelets to prevent breaking. Owing to peculiar shape does not revolve but darts through water. ONE ON A CARD; SIX IN A BOX.

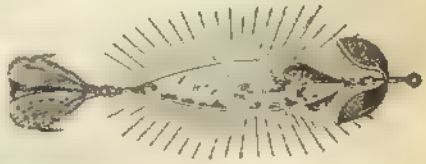
PEARL TANDEM.

No. 81.

No. 81—Pearl, 2 in. *pearl blades* revolving in opposite directions, mounted on hollow point feathered treble hooks, and brass box swivel.....per dozen $7.00

ONE ON A CARD, ONE DOZEN IN A BOX.

PEARL MINNOWS.



No. 61—Haynes', 3 in., rainbow, pearl body, nickel fins, revolving, spinner, feathered treble hook.....per dozen $13.60

ONE IN A BOX.

TROLLING BAITS.

"REV-O-NOC" GLOW.

THE FAMOUS REVONOC GLOW BAITS
EXCELLENT FOR DAY FISHING AND ESPECIALLY GOOD AT EVENING OR NIGHT OR IN DEEP AND ROCKY WATERS.
ASSORTMENT

No. 1160.

No. 1160—Assortment of 6 glow baits, nickel plated treble hooks trimmed with high grade of feathers, baits assorted as follows

Size 8 —Original fluted glow bait.
Size 4¾ —Genuine fluted glow bait
Size 2 —Double propeller glow bait
Size 3 American spinner glow bait
Size 2 —Star glow bait
Size 5 —Kidney ball glow bait.

Per assortment. $2 50

All of these baits are made with the excellent glow or luminous feature which makes them doubly attractive and effective as bait

No. 1160½—Assortment, same as above, otherwise the same as No. 1160, assorted as follows:

Size 8 —Original fluted baits
Size 4¾ —Genuine fluted bait
Size 2 —Double propeller bait
Size 3 —American spinner bait
Size 2 —Star bait
Size 5 —Kidney ball bait.

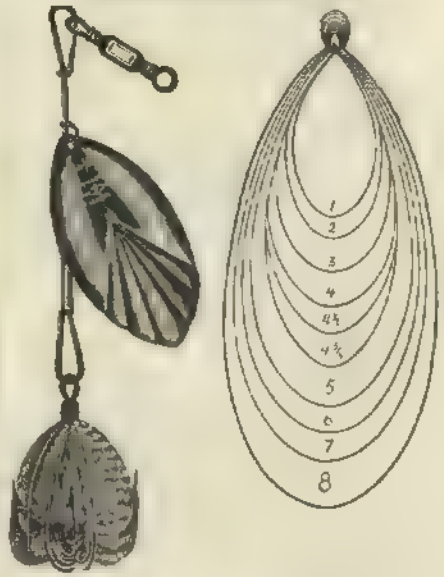
Per assortment. $1.50

These are high grade and effective baits but without the luminous feature of the No. 1160 assortment

These baits have been selected with a view of combining in one assortment a variety of the most popular patterns and sizes. Each assortment consisting of six baits is sewed on a printed display card in such a manner that each bait can be easily detached.

ONE ASSORTMENT IN FANCY DISPLAY BOX

REGULAR FLUTED.



Full size cut.

Standard Quality Blade, Nickeled Convex, Red Concave, Mounted on Brass Box Swivel and High Grade Feathered Treble Hooks.

No. 1912—Sizes	1	2	3	4
Size spoon	1	1⅛	1¼	1⅜ in.
Per dozen	$1 00	1.00	1.00	1.00
No. 1912 -Sizes	4½	4¾		5
Size spoon	1⅝	1⅞		2⅛ in.
Per dozen	$1 00	1.00		1 10
No. 1912—Sizes	6	7		8
Size spoon	2¼	2⅜		2½ in
Per dozen	$1 10	1 20		1 20

ONE DOZEN IN A BOX.

"REV-O-NOC" FLUTED.

No. 1910 REVONOC—Finest Quality Blade, Nickel Convex, Polished Copper Concave, Mounted on Brass Box Swivel and Hollow Point Finely Feathered Treble Hooks.

SIZES	SIZE SPOON IN	PER DOZEN
1	1	$2 40
2	1⅛	2 40
3	1¼	2 40
4	1⅜	2 40
4½	1⅝	2 40
4¾	1⅞	2 40
5	2⅛	2 70
6	2¼	2 70
7	2⅜	3 00
8	2½	3.00

THREE ON A PERFORATED CARD. ONE DOZEN IN A BOX

SKINNER'S FLUTED.

No. 1911 REVONOC—High Grade Nickeled Blade, Mounted on Brass Box Swivel and Feathered Hollow Point Treble Hooks.

SIZES	SIZE SPOON IN.	PER DOZEN
1	1	$3.00
2	1⅛	3.00
3	1¼	3.00
4	1½	3.00
4½	1⅝	3.00
4¾	1¾	3.00
5	2⅛	4.00
6	2¼	4.00
7	2⅜	5 00
8	2½	5 00

ONE DOZEN IN A BOX.

OVAL HAMMERED.

Full size cut.

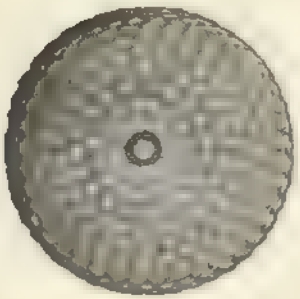
Fine Quality Hammered Blade, Nickeled Convex, Red and Nickel Concave, Mounted on Brass Box Swivel and High Grade Feathered Hooks.

No. 1913—Sizes	2	3	4	5	6
Size spoon	1½	1¾	2⅛	2½	2⅝ in
Per dozen	$1 00	1 00	1.00	1.00	1.00

ONE DOZEN IN A BOX.

GOLF BALLS AND CADDY BAGS.

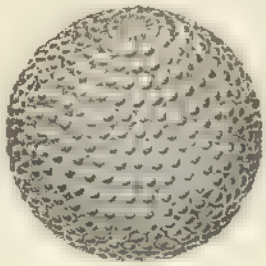
GOLF BALLS.



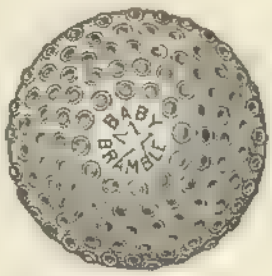
G1 Whiz.....per dozen $12 00
ONE DOZEN IN A BOX

G2 White Streak.....per dozen $14 00
ONE DOZEN IN A BOX

GOLF BALLS.

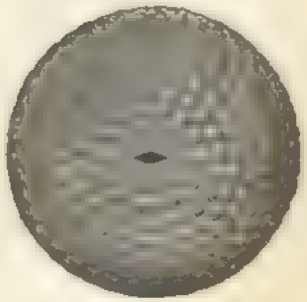


G4 White Flyer.....per dozen $12 00
ONE DOZEN IN A BOX.



G3 Baby Bramble.....per dozen $14.00
ONE DOZEN IN A BOX

GOLF BALLS.



G5 Black Diamond.....per dozen $12.00
HALF DOZEN IN A TUBE.

G6 White Diamond.....per dozen $14.00
HALF DOZEN IN A TUBE

CADDY BAGS.

Leather.

Soft Leather, with Sling and Ball Pocket.

No. 205—3¾×34 in., thong stitched, light colored, w't 2½ lbs.....each $6 20

Soft Leather, with Sling and Ball Pocket.

No. 205½—3¾×34 in., dark colored leather, otherwise same as No 205, w't 2 lbs.....each $6 20

No. 204—6×34 in., reinforced at bottom, leather trimmed, light color, w't 2½ lbs.....each 8.00

No. 204½—6×34 in., dark smooth leather otherwise same as No 204, w't 2½ lbs., each..... 8.00

No. 39—5×35 in., heavy border bag leather, brass trimmings, w't 2½ lbs.....each 8 10

Stiff Leather, with Sling and Ball Pocket.

No. 18—4¼×35 in., best oak hard border bag leather, brass trimmed, w't 1⅞ lbs.....each $7.90

No. 305—3¾×34 in., sole leather, light colored, long ball pocket, open at top and bottom, w't 2 lbs.....each 8 30

No. 305½—3¾×34 in., dark colored leather, otherwise same as No. 305, w't 2 lbs.....each 8 30

Heavy Canvas, with Sling and Ball Pocket.

No. 131—5×34 in., tan, leather trimmings, w't 2 lbs.....each $2 00

No. 32—4½×34 in., heavy brown duck, leather trimmed, nickel trimmings, reinforced leather bottom, w't 1¾ lbs.each 2 80

No. 41—5×35 in., heavy white canvas, heavy leather trimmed, brass trimmings, reinforced leather bottom, w't 2¼ lbs.....each 6 40

No. 42—5×35 in., heavy brown canvas, heavy leather trimmed, hickory slat on each side, brass trimmings, reinforced eather bottom, w't 2½ lbs.....each 6.40

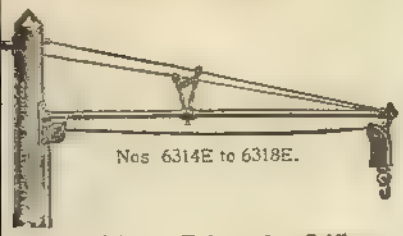
Canvas.

Heavy Canvas, with Sling and Ball Pocket.

No. 38—6×35 in., heavy brown canvas, leather trimmed, brass trimmings, 15 in. hood with strap inserted through metal loops fastened with a lock buckle, when hood is not in use it can be placed inside of bag, reinforced leather bottom, w't 2¼ lbs.....each $9 30

ELECTRIC LIGHT MATERIAL.

MAST ARMS.



Nos 6314E to 6318E.

ledium, with one Triangular Stiffener.

o. 6314E—	6 ft.,	each	$ 7.80
o. 6315E—	8 ft.,	"	8 60
o. 6316E—	10 ft.,	"	9.40
o. 6317E—	12 ft.,	"	10.20
o. 6318E	14 ft.,	"	11.00

A common-sense type of mast-arm furnished with steel thrust-arm from which a pair of steel strain rods to the cap piece, giving a double bracing to keep the from swaying in high winds. The pole plate has cast iron roof pulley fastened direct to the thrust arm extra heavy and the end has a safety pulley fitted to

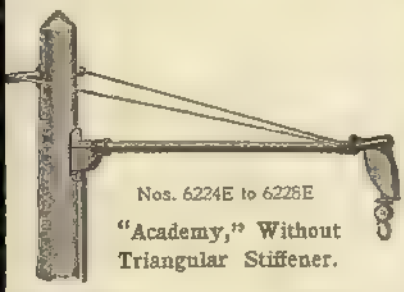
Midget, without Triangular Stiffener.

o. 6310E—	4 ft.,	each	$ 6.00
o. 6311E—	6 ft.,	"	6.80
o. 6312E—	8 ft.,	"	7.60

A shorter form of the cut above, with the same ar ment of thrust-arm and strain rods, but without the ner for the middle of the pipe. Complete with ety pulley but without rope

umbo," with two Triangular Stiffeners, Safety Pulley, Anchored Thrust-Arm and Heavier Strain Rods. Otherwise Similar to Above.

o. 6330E	16 ft.,	each	$13.00
o. 6331E—	18 ft.,	"	14.00
o. 6332E—	20 ft.,	"	15 00



Nos. 6224E to 6228E

"Academy," Without Triangular Stiffener.

o. 6224E	4 ft.,	each	$ 6.00
o. 6226E	6 ft.,	"	6.80
o. 6228E—	8 ft.,	"	7 60

A short mast-arm, with the pole pulley and the er safety pulley held so that the rope runs through piping. Has a steel thrust-arm for the back of the le, and pair of steel strain rods.

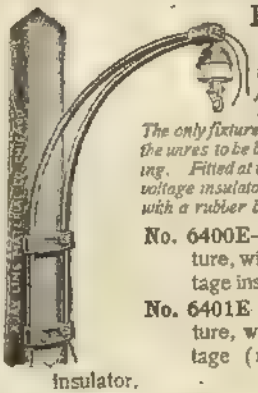
ubular, With One Triangular Stiffener. Otherwise Same as Above.

o. 6116E—	6 ft.,	each	$ 7.80
o. 6118E—	8 ft.,	"	8.60
o. 6120E—	10 ft.,	"	9.40
o. 6122E—	12 ft.,	"	10 20
o. 6124E—	14 ft.,	"	11.00

Varsity," With Two Triangular Stiffeners, Heavier Strain Rods and Side-braced Thrust Arms, otherwise same as above.

o. 6301E—	12 ft.,	each	$11.40
o. 6302E—	14 ft.,	"	12 40
o. 6303E—	15 ft.,	"	12 90
o. 6304E—	16 ft.,	"	13.40
o. 6305E—	18 ft.,	"	14 40
o. 6306E—	20 ft.,	"	15.40

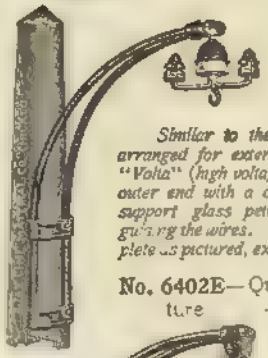
POLE TOPS.



A neat, two-foot fixture, equally suitable for use on round poles, square poles or walls. The only fixture of its kind that allows the wires to be brought through the piping. Fitted at the outer end with a high voltage insulator (or for low voltage with a rubber bell insulator).

No. 6400E—Front fixture, with high voltage insulator, each $4.80

No. 6401E—Front fixture, with low voltage (rubber bell) insulator, each, 4.60

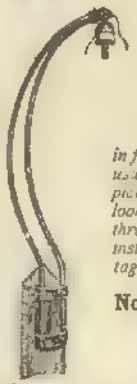


Similar to the front fixture, but arranged for external wiring. Has a "Volta" (high voltage) cross-arm at the outer end with a channel steel arm to support glass petticoat insulators for guiding the wires. Two-foot reach, complete as pictured, except glass insulators.

No. 6402E— Quadrant fixture each $5.00

An unusually complete and firm three-foot fixture for use on poles, posts or walls. Has a safety pulley at the outer end, and a companion sleet-proof pulley clamped to the curved pipes saving the extra labor of boring the companion pulley to the pole.

No. 6404E— Pulleyed fixture, without rope, each $6 00



This new type holds the lamp slightly in front of the pole, or out of reach of the usual line of trees, is extremely fashionable in appearance, almost shadowless and neat in looks. The wires are readily run through the piping to the lamp, which is insulated from the fixture by a high voltage insulator.

No. 6403E—Forward, each $6 00

BRACKETS.

A firm but ornamental steel bracket for holding an arc lamp 30 inches from a pole or wall. Fitted at the outer end with a volta cross-arm, ample for high voltage circuits.

No. 6410E—30 in., Chicago, - each $4.00

BRACKETS.

No. 6411E—4 ft., Opera, with insulator for supporting lamp, yet arranged to be wired through the piping, - - - - each $4.50

No. 6412E—5 ft., with chains and rosettes for guying the outer end, otherwise same as above - each 5.60

No. 6414E—4 ft., Madison, complete with bell insulator, not wired, each - - - - - - $3.60

No. 6415E—4 ft., Madison, grooved flange, without inner piping, each - - - - - - 3.50

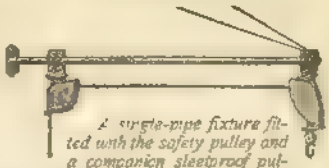
An ornamental arc lamp bracket for concealed wiring. Holds the lamp three feet from the wall, and has the pipe extending one foot inside the wall flange, so that the wires can be brought through it.

No. 6416E—4 ft., Ionic, complete, each, - - - - - - $3 80

No. 6418E—6 ft., Ionic, with chains and rosettes for guying outer end, each, - - - - - - 5.20

An ornamental bracket having a channel steel cross-arm with glass insulators to guide the line wires, and a volta insulator to properly insulate the lamp frame.

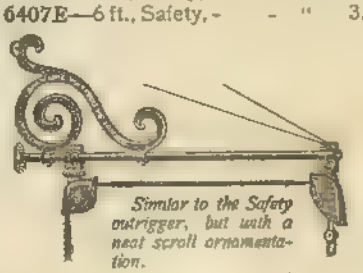
OUTRIGGERS.



A single-pipe fixture fitted with the safety pulley and a companion sleetproof pulley. Requires guying for the outer end, but can be put up in places where the wall space is limited.

No. 6406E—3 ft., Safety, - - each $2.60

No. 6407E—6 ft., Safety, - - " 3.00



Similar to the Safety outrigger, but with a neat scroll ornamentation.

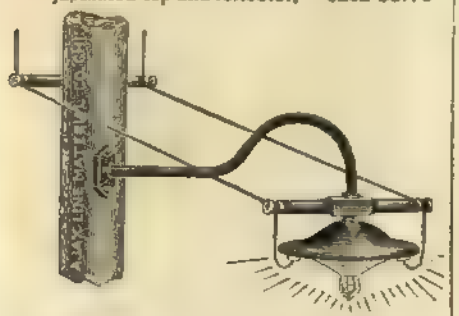
No. 6420E—3 ft., Scroll, with pulleys, each, - - - - - - $4.00

No. 6421E -6 ft., - - each 4.40

ELECTRIC LIGHT MATERIAL.

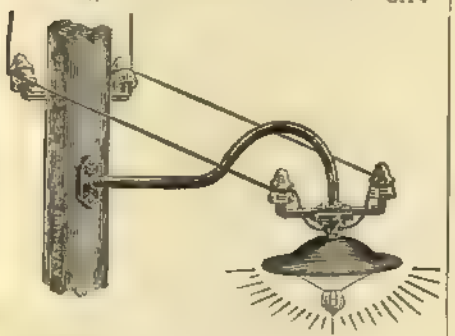
HOODS.

No. 6633E—3 ft., Swan, gooseneck, 1 ft. inner piping, Edison socket, japanned top and reflector, - each $3.10



No. 6634E—3 ft., Chicago, gooseneck, Edison socket, japanned top and reflector, rear arm for back of pole, - - - - each $3.70

No. 6635E—Chicago, without rear arm, otherwise same as above, each, - - - - - 3.14



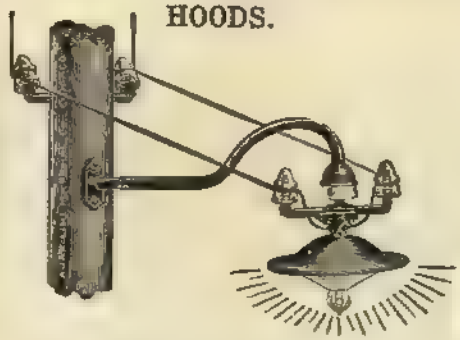
No. 6636E—3 ft., Duro, gooseneck, Edison socket, japanned top and reflector, channel steel cross-arm, (with double petticoat glass insulators), an extra durable fixture, each, - - - - - $3.40

No. 6637E—"Duro," with channel steel pole arm (as shown at back of pole in above cut), otherwise same as above, - - each 4.10

No. 6644E—Horizontal, complete with Edison socket, pole arms for the wires and adjustable clamps for the ropes, - - - each $6.00

A suspension hood supported by the two wires and two ropes running over pulleys at the end of an iron cross-arm

HOODS.



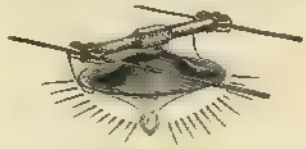
No. 6638E—"Volta," Edison socket, 1000 volt insulator over cross-arm, without pole arm, for high voltage circuits, - - - - each $4.30

No. 6639E—"Volta," with pole-arm (as shown at back of pole in above cut), otherwise same as above, each, - - - - - - 5.00

No. 6640E—Beam head, with Edison socket, japanned top and reflector and cross-arm with suspension loop, - - - - each $2.40

No. 6641E—"Ring" hood, with Edison socket, japanned top and reflector, and cross-arm with suspension loop, - - - - each $2.40

No. 6642E—Tee hood, a strong suspension hood, with steel cross-arms and Edison socket, - each $2.66



No. 6643E—Taut hood, center part of this illustration, with Edison socket and spreader arms, - each $2.80

POLE ARMS.

No. 6646E—Pole arm, channel steel, with cushion tips, - - each $0.70

REAR ARMS.

No. 6660E. No. 6661E.

No. 6660E—Rear arm (for incandescent hoods), enameled wood, metal bound ends, porcelain knobs and pole plate, - - each $6

No. 6661E—Without side brackets, "

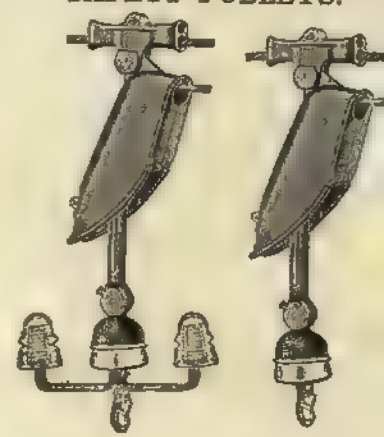
A shorter form of the above, without the side ing, as used with the Medium, Midget and Tu mast-arms.

ANCHORED ARMS.

No. 6662E—Furnished regularly with the "Jumbo" and "Varsity" mast-arms, - - - each $2

The only device of the kind that really utilizes full diameter of the pole.

SAFETY PULLEYS.



No. 6701E. No. 6702E.

No. 6701E—With volta arm, - each $3

No. 6702E—With volta insulator, " 2

The finest combination made for insulating and porting an arc lamp, and for guiding the wires to the la

HOISTING CHAIN.

No. 1E—Oneida galvanized, per 100 ft. $3

1000 feet on a reel. Oneida galvanized chain is especially intended to be used on electric poles, for arc lamp suspension, in place of wire co hemp or cotton cords. It is low in price and will two or three times as long as any substitute now in This size will fit perfectly Bradley, Fletcher, Cutte Ajax pulleys.

GYMNASIUM GOODS.

SUPPORTERS.

No. 562—Admiral, latest improved athletic supporter with detachable front pouch, all elastic, sizes small, medium and large, per dozen - - $12.00

ONE IN A PASTEBOARD BOX

No. 561S Elastic throughout, except balbriggan forepiece, sizes small, medium and large, per dozen, - $9.00

ONE IN A PASTEBOARD BOX.

No. 6—Morton's, good quality Canton flannel, lace front, hand made eyelets, per dozen - $3.00

No. 7—Morton's, elastic sides, otherwise same as No 6, per dozen - 6.00

ONE IN A PASTEBOARD BOX

In ordering, give waist measurment.

SUSPENSORIES.

Army and Navy.

No. 340 - Silk sack, elastic band, per dozen - $7.50

No. 320 Lisle sack elastic band, per dozen - 5.00

No 300 Lisle sack, non-elastic band, per dozen, - - - - - - $3.00

ONE IN A PASTEBOARD BOX.

ELASTIC BANDAGES.

No. 153 —15 ft. long, 3 in. wide, per dozen, - - - - - - $8.00

No. 93 — 9 ft long, 3 in wide per dozen, - - - - - - 7.00

No. 152½—15 ft. long, 2½ in. wide, per dozen, - - - - - - 6.00

No. 92½— 9 ft. long, 2½ in. wide, per dozen, - - - - - - 4.50

No. 152 —15 ft. long, 2 in. wide, per dozen, - - - - - - 5.00

No. 92 — 9 ft. long, 2 in. wide, per dozen, - - - - - - 4.00

All lengths are stretched measure.

PUFFED TRUNKS.

To Order Only.

No. 305—Velvet, colors crimson, black, navy and royal blue, per dozen pairs $12.00

No. 307 Satine, colors white navy and black, - per dozen pairs $8.00

SLEEVELESS SHIRTS.

No. 50 Medium weight worsted, colors navy, crimson, gray and black, per dozen $24.00

No. 24—Heavy weight cotton, colors white black and navy, per dozen 6.00

ONE HALF DOZEN IN A BOX

QUARTER SLEEVE SHIRTS.

No. 51—Medium weight worsted, colors navy, crimson, gray and black, per dozen $24.00

No. 25—Heavy weight cotton, colors white, black and navy, - per dozen 6.00

ONE-HALF DOZEN IN A BOX.

KNEE TIGHTS.

No. 52—Medium weight worsted, colors navy, crimson, gray and black, per dozen pairs, - - $24.00

No. 26—Heavy weight cotton, colors white, black and navy, per dozen pairs, - - 6.00

ONE HALF DOZEN IN A BOX.

RUNNING PANTS.

To Order Only

No. 270—Poplin fly front, laced back, variety of colors per dozen pairs $15.00

No. 264—Fine satine fly front, laced back, colors scarlet, crimson, navy, purple, royal blue white and black, per dozen pairs - - - - $12.00

No. 267—White silesia, fly front, laced back, - - - per dozen pairs 6.00

No. 260—Fine cotton cloth, fly front, laced back, colors white or black, per dozen pairs, - - - - - - 6.00

Striping running pants from $1.20 to $6.00 per dozen pairs

ONE-HALF DOZEN IN A BOX.

LONG GYMNASIUM PANTS.

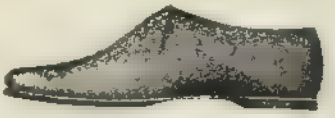
To Order Only.

No. 348—Men's, full length, half lined, belt band, 1 back and 1 watch pocket, regulation color, cotton and wool mixed, with or without stripe, per dozen pairs, - $24.00

GYMNASIUM SHOES.

No. 211A—Golden bal., kangaroo calf, genuine elk sole, Goodyear stitched, high cut, - - per dozen pairs $54.00

No 247G—Golden bal., bright dongola, machine sewed, horsehide sole, high cut, - - - per dozen pairs 36.00



No. 210A—Golden oxfords, kangaroo calf, elk sole, Goodyear stitched, low cut, per dozen pairs, - - - - $48.00

No. 246G—Golden oxfords, bright dongola, machine sewed, horsehide sole, low cut, - - - per dozen pairs 30.00

TENNIS SHOES.

Champion Canvas Uppers with Rubber Soles, Cemented, Black or White.

No. 75—Men's Balmorals, per dozen pairs $21.00

No. 85—Boys' Balmorals, " " 20.00

No. 95—Women's Balmorals, per dozen pairs, - - - - - - 20.00

Champion Canvas Uppers with Rubber Soles, Cemented, Black or White.

No. 80—Men's oxfords, - per dozen pairs $18.00

No. 90—Boys' oxfords, - " " 17.00

No. 100—Women's oxfords, - " " 17.00

RUNNING SHOES.

No. 306—Golden patent, genuine kangaroo, best English spikes, special last, highest grade workmanship, per dozen pairs $60.00

No. 314—Golden patent, selected kangaroo calf, best English spikes, special last, perfect workmanship, per dozen pairs 48.00

No. 324—Golden patent, Essex kangaroo, good quality spikes, special last, machine sewed, - - per dozen pairs 36.00

ONE PAIR IN A BOX.

SPECIAL GYMNASIUM CATALOGUE SENT UPON APPLICATION

GYMNASIUM GOODS.

MAPLE INDIAN CLUBS, MAPLE INDIAN CLUB AND DUMB BELL HOOKS.

Indian Club Hooks.

No. 133—With screws, per dozen pairs, - - $1 80

Dumb Bell Hooks.

No. 134—Cup shape, with screws, - per dozen pairs $1.80

Indian Clubs, First Quality Maple, Finished in Hard Oil, Polished.

Pounds,	¼	½	¾	1	1½
Per dozen pairs,	$3.15	3.36	3.60	4.80	5 40
Pounds,	**2**	**2½**	**3**	**4**	**5**
Per dozen pairs,	$6.00	7.20	7.80	10.80	13.80

A pair of 1 lb. Indian clubs weighs 2 lbs

OUTDOOR HAMMERS.

Iron Ball, Wire Handle, Regulation Size.

Pounds,	12	16
Iron,	$3.00	3.25
Lead,	4.00	4.50

SHOTS.

Outdoor.

Indoor.

Outdoor, Regulation Size.

Pounds,	12	16
Iron,	$1 00	1 25
Lead,	2 25	2 50

Indoor, Iron, Leather Covered.

Pounds,	12	16
Each,	$7.00	8.50

VAULTING POLES.

Spruce.

Feet,	8	9	10	11	12	14
Each,	$3.00	3.25	3.50	3.75	4.00	4.50

These poles are thoroughly seasoned and selected with the greatest care. They are as light as practicable consistent with strength, and every one is carefully tested before leaving the factory

HORIZONTAL BARS.

Second Growth Hickory.

Nos.	116	117	118
Length,	4	4½	5 ft.
Per dozen,	$15.00	18.00	21.00
Nos.	**119**	**120**	**121**
Length,	5½	6	6½ ft.
Per dozen,	$24.00	24.00	27.00

Steel Core.

Nos.	112	113	114	115
Length,	5½	6	6½	7 ft.
Per dozen,	$78.00	84.00	90.00	96.00

These horizontal bars are made of selected second-growth hickory. Our steel core bar is of superior quality and the core is made of the best tool steel, and warranted.

Shipped Direct from Factory Only.

No. 12—Adjustable, 2 in. iron pipe uprights, iron guys, threaded floor flanges for uprights, floor plates for fastening guys to floor, best young hickory bar with steel core, w't 150 lbs., complete, - - - - - - each $32 00

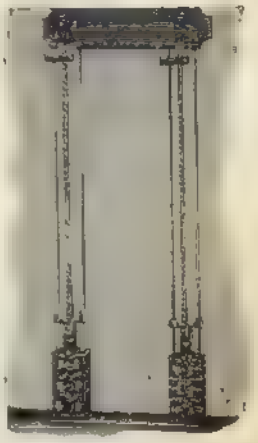
PARALLEL BARS.

Shipped Direct from Factory Only.

No. 5—9 ft. long, 58 in. high, 16½ in. wide between the bars, heavy iron bases selected hardwood uprights, top and bottom bars bases equipped with detachable rollers, w't packed 300 lbs., each - - - - - - - $34 00

All corners on the uprights and bottom bars are rounded, and there are no parts projecting to injure the user. The top bars are of an oval shape, tapered at the ends, or round top bars will be furnished, when preferable.

PULLEY WEIGHTS.



Shipped Direct from Factory Only.

No. 56—Double set of rods, under-lift weights, compound ropes, swivel pulleys, each handle has 14 lbs. of weight, w't packed 70 lbs. - complete $12.00

HOME GYMNASIUM.

No. 90—Consists of a pair of swinging rings, trapeze, one pair of stirrups and a swing board, complete, - $5.00

It can be put anywhere, in a room between doors, basement, porch, etc., etc. Two eye screws are screwed in a wood beam, plank or joist 16 in. apart, for adults 19 in.

ONE IN A BOX.

Trapeze.

TRAPEZE.

No. 89—Adjustable, extra strong webbing, strong hickory bar, complete. - $3.00

ONE IN A BOX.

SWINGING RINGS.

No. 88 Adjustable, extra strong webbing supports, japanned rings, perfectly safe for 16 ft ceiling, complete. - $3 00

ONE IN A BOX

Swinging Rings

GYMNASIUM MATTRESSES.

Nos.	500	501	502	503	504
Size,	3x5	5x5	5x7	5x10	5x15 ft.
Thickness	2	2	2	2	2 in.
W't packed	30	50	70	100	150 lbs.
Each,	$10.00	15.00	20.00	30.00	40.00

Other Sizes.

No. 505—2 in., any other sizes - per sq. ft. $0 60

No. 506—3 in., any other sizes, - " " .70

MOTORCYCLE ACCESSORIES.

MOTORCYCLE TIRES.

G. & J. Moulded, Corrugated Tread, Double Clinch.

SIZES INCHES.	CASE ONLY, EACH	TUBE ONLY, EACH	TIRES PER PAIR
26 × 2	$8 70	2 25	20 70
26 × 2¼	8 75	2 30	22 [illegible]
26 × 2½	9 45	2 [illegible]	24 80
28 × 2	8 35	2 70	22 10
28 2¼	9 00	2 70	2 40
28 × 2½	9 90	3 15	26 10

G. & J., Moulded, Bailey Tread, Double Clinch.

SIZES INCHES.	CASE ONLY, EACH	TUBE ONLY EACH.	TIRES PER PAIR
26 2	$ 9 00	2 25	24 30
26 2¼	10 35	2 [illegible]	2[illegible] 10
26 2½	11 25	2 [illegible]	2[illegible] 10
28 2	10 15	2 70	25 70
28 2¼	10 80	2 70	27 00
28 × 2½	11 70	3 15	29 70

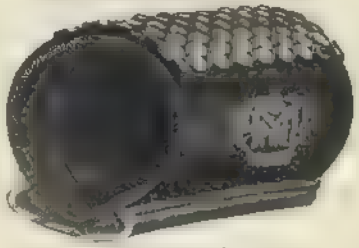
M. & W. Bailey Tread, Endless Tube, Double Clinch, Grey.

SIZES, INCHES.	CASE ONLY, EACH.	TUBE ONLY, EACH.	TIRES PER PAIR
26 × 2¼	$10 55	2 50	26 10
26 × 2½	11 25	2 [illegible]	28 10
28 × 2	10 15	2 70	25 70
28 × 2¼	10 80	2 70	27 00
28 × 2½	11 70	3 15	29.70

M. & W., Bailey Tread, Endless Tube, Single Clinch, Grey.

SIZES, INCH	CASE ONLY, EACH	TUBE ONLY, EACH.	TIRES, PER PAIR.
26 × 2¼	$ 0 55	2 50	26 10
26 × 2½	11 25	2 95	28 40
28 × 2	10 15	2 70	25 70
28 × 2¼	10 80	2 70	27 00
28 × 2½	11 70	3 15	29.70

MOTORCYCE TIRES.



Empire, Bailey Tread, Endless Tube.

SIZES, INCH.	CASE ONLY, EACH	EXTRA HEAVY TIRES TUBE, RED TUBE, EACH	PER PAIR
26 × 2¼	$ 9 60	2 25 2 70	23 70
26 × 2½	10 10	2 50 3 00	25 20
28 × 2¼	10 00	2 50 3 00	25 00
28 × 2½	10 50	2 75 3 30	26 70

Empire, Corrugated Tread, Endless Tube.

SIZES, INCH	CASE ONLY, EACH	GRAY TUBE EACH.	EXTRA HEAVY RED TUBE EACH.	TIRES, PER PAIR
26 × 2¼	$8 35	2 25	2 70	24 20
26 × 2½	8 85	2 50	3 00	22 70
28 × 2	8 25	2 25	2 70	21 60
28 × 2¼	8 75	2 50	3 00	22 50
28 × 2½	9 25	2.75	3 30	24 00

Empire, Extra Heavy Wrapped Raised Tread, Endless Tube.

SIZES IN.	CASE ONLY, EACH.	BAILEY TREAD CASE ONLY	GREY TUBE ONLY.	EXTRA HEAVY RED TUBE ONLY
26 2¼	$ 9.75	11 25	2 25	2 70
26 2½	10 00	11 50	2 50	3 00
28 × 2¼	10 00	11.50	2 50	3 00
28 × 2½	11.00	12 50	2.75	3.30
28 × 2¾	13 35	14 85	3 00	3.60

28 × 2¾ in., will fit the regular 28 × 2¼ in. rim.

The red tubes listed above are the extra heavy peerless inner tubes.

PEDOMETERS.

Designed to be attached to belt or inside of pocket, always hanging vertically

Each step vibrates automatic mechanism, thus setting the cog wheels in motion and according to the distance walked by the wearer.

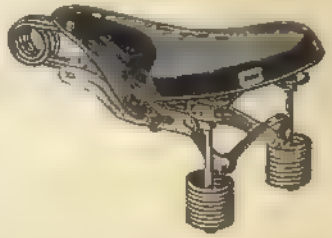
No. 7—AMERICAN diameter 1¾ in., registers 100 miles .....each $1.50

ONE IN A BOX.

MOTORCYCLE SADDLES.

No. 2—PERSON'S front and rear coil springs very strong, easy riding, size 12½×9½ in., wt 8½ lbs.... ...each $6 00

No. 1—PERSON'S AMERICAN, fitted with duplex compound springs, no-rebound, non-vibratory and extra heavy fine quality leather top, 12½×12½ in., divided throughout to straddle frame, no friction, w't 5¼ lbs.... ...each $8 00



No. 206—TROXEL EAGLE, heavy truss cushion springs in rear, nose coil in front, universal clamp, heavy nickeled frame, best imported leather, 13¼ × 12 in., w't 5½ lbs .....each $9 00

MOTORCYCLE HORNS.

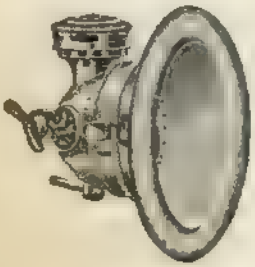
Polished Brass.

No. 4	—3¼ in. bell, length 9¾ in..	each	$1 60
No. 6	—4½ in. bell, length 12 in..	"	2 00
No. 8	—5 in. bell, length 13 in..	"	2 25
No. 10	—6 in. bell, length 14¾ in..	"	3 00

No. 726—BULL FROG, 4¼ in. polished brass bell, with double coil, giving a deep tone.....each $3.00

MOTORCYCLE ACCESSORIES.

MOTORCYCLE LAMP SETS.



Lamp.

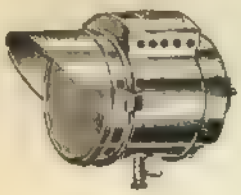
Generator.

Generator Bracket.

Set Consists of One Lamp, Generator and Generator Bracket Complete as Follows.

No. 4—Lamp, red and green jewel side lights, aluminum parabola reflector, other parts nickel plated, front diam. 6 in., height 6 in., w't 14 oz., generator height 6 in., diam. 2¼ in., nickel plated and polished, carbide capacity 6 oz., w't 14 oz; generator bracket, made to hold the generator, with clamps to fasten to frame w't 9 oz., w't per set 4½ lbs., complete.....per set $7 50

ONE SET IN A BOX.



Lamp.

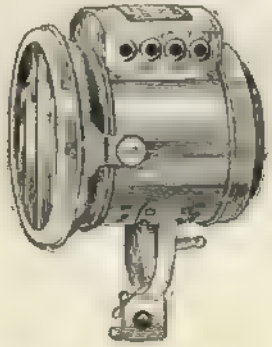
Generator

Set Consists of One Lamp and Generator Complete.

No. 95—CALIFORNIA, lamp, 5½ in. high, 4½ in. diam. of front, 4 in. lens mirror, heavily nickel plated brass, w't 1 lb. generator 11 in. high with clamps to fasten to frame, diam. 2 in., nickel plated brass, carbide capacity 8 oz., w't per set 4½ lbs. complete, per set..... $10.00

ONE SET IN A BOX.

MOTORCYCLE LAMP SETS.



Lamp

Generator.

Generator Bracket.

Set Consists of One Lamp, Generator and Generator Bracket Complete as Follows.

No. 100—Lamp, nickel plated brass, 4 in. diamgin mirror lens 5½ in high diam 4 in., with clamp to fasten on frame, generator, same as the one furnished with the No. 4 outfit, generator bracket, same as the No. 4 outfit, furnished with 3 ft of tubing to connect the generator with lamp, w't per set 6 lbs., complete per set $12 50

ONE SET IN A BOX

MOTORCYLE HANDLE BAR GRIPS.

No. 30M—G. & J. ROUGH RIDER, made of rubber, constructed so as to extend about 4 in. beyond end of handle bar, very pliable w't per pair 8 oz., per pair $1 50

The knobs on the ends of the grip make it easily held and prevents any possibility of the hands slipping off

MOTORCYCLE PUMPS.

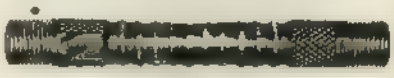
No. 36G—T[illegible] 15½ in long, heavy brass tubing nickel plated and polished, two adjustable clamps to fasten on frame, rubber tubing, which is pushed inside the cylinder when not in use, w't per doz. 9 lbs., per dozen..... $15 00

MOTORCYCLE PEDALS.

No. 3—STANDARD, ⅜ in. steel axle, ball bearing, ¼ in. balls, deep corrugated rubbers supported on square rod gives firm foothold, dust caps are held in place by nuts, cannot jar loose, w't per pair 20 oz.....per pair $3 00

ONE PAIR IN A BOX.

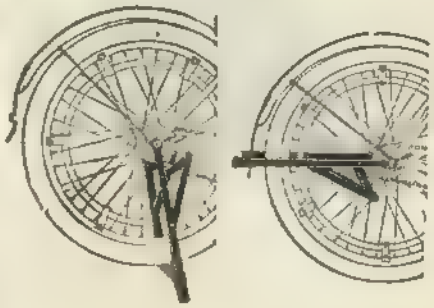
MOTORCYCLE REPAIR PEDALS.



No. 200—One piece forged steel, can be applied in a few minutes center is corrugated to prevent the rider's foot from slipping sideways w't 3 oz. .each $0 35

These are especially valuable in touring endurance contests or road races.

MOTORCYCLE STANDS.



In use Folded

No. 300—QUICK ACTION, made of steel, firmly riveted height 17 in., fits any motorcycle, when folded is attached to bracket on the end of mud guard w't 3¼ lbs.....each $3 00

This stand is ideal for show room or demonstrating purposes, protects the machine in rear from collision and is entirely out of the way when folded.

FOOT BALL GOODS AND SWEATERS.

"REV-O-NOC" HEAD HARNESS.

Our latest moulded ear pieces are used on this helmet. They fit the head so closely that the elastic chin-piece can almost be done away with, and offer absolute protection.

No. 549B—5 oz. black harness leather, hand made and moulded special forms to fit the head perfectly, padded with white felt, but perforated so as to give excellent ventilation, adjustable elastic chin piece.. ...per dozen $42 00

ONE IN A BOX

Nos. 541L and 541M.

No. 3.

No. 541L—Napa tan black leather, moulded ears, white felt lined, ventilated, adjustable elastic chin strap, per dozen..... $27 00

No 541M Moleskin sides and ears, otherwise same as No. 541L, per dozen 21 00

No. 3 —Open, soft, selected leather, lined with soft white felt....per dozen 18 00

ONE IN A BOX.

NOSE GUARDS.

No. 10.

No 1.

No. 10—Penna, large size, nose and chin guard, hardened rubber, detachable mouthpiece.....per dozen $15.00

No. 1—Morrill, nose guard, hardened rubber.....per dozen 10.00

ONE IN A BOX.

SHOULDER PADS.

No. 6—Napa tan leather, felt padded, per dozen pairs..... $9 00

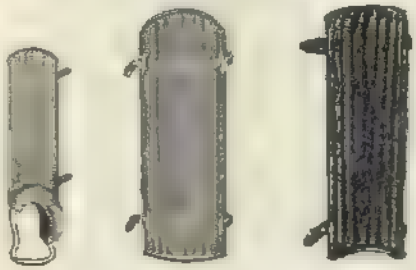
No. 4—Khaki duck, padded, per dozen pairs..... 3 00

ELBOW PADS.

No. 5—Napa tan leather, felt padded, per dozen pairs..... $9 00

No. 3—Khaki duck, padded, per dozen pairs..... 3.00

"REV-O-NOC" SHIN GUARDS.



No. 0. Nos. 1, 2 and 3. Nos. 4 and 5.

No. 0—Black leather, with latest style ankle pad, an absolute protection to the ankle bones, 10 in., per dozen pairs $2. 00

No. 1—Russet leather front, leather bound, rattan reeds, with continuous strap on outside of guards encircling leg, making guard more secure, 12 in., per dozen pairs..... 15.00

No. 2—Moleskin, drab color, leather bound, rattan reeds, with continuous strap on outside of guard encircling leg, making guard more secure, 12 in., per dozen pairs..... 12.00

No. 3—Heavy tan color canvas, leather bound, rattan reeds, with continuous strap on outside of guard encircling leg, making guard more secure, 12 in., per dozen pairs..... 9.60

No. 4—Tan color canvas, fabric bound, rattan reeds, 12 in....per dozen pairs 7.80

No. 5—Khaki, tan color, tape strap on outside of guard encircling leg, making guard more secure, 10 in., per dozen pairs..... 6 00

JERSEYS.

Sizes 34 to 44.

No. 913—High grade pure worsted heavy weight, adapted for football players, etc., colors black, navy, maroon, Oxford and white.....per dozen $48 00

No. 785—Plain pure worsted, light weight, fast colors, black, navy, maroon, Oxford, white.....per dozen 36 00

ONE IN A BOX

MEN'S SWEATERS.

No. 358.

Sizes 36 to 42.

No. 358—Fine quality Shaker knit, colors navy and Oxford, ribbed bottom and cuffs ..... per dozen $72 00

No 210 All wool heavy weight Shaker collar, double bottom and cuffs, colors navy and Oxford.....per dozen 60 00

ONE IN A BOX

BOYS' SWEATERS.

Sizes 26 to 32.

No. 115—All wool, Oxford, ribbed bottom and cuffs.....per dozen $24.00

ONE IN A BOX.

MEN'S COAT SWEATERS.

Nos. 617, 601 and 827

Sizes 36 to 42.

No. 827—Serpentine weave, best quality pure worsted, colors navy and Oxford, pearl buttons.....per dozen $84.00

An elegant garment.

No. 617—Regular weave, high grade worsted in following combination. Oxford with navy trimming; Oxford with crimson trimming, also Oxford solid color, pearl buttons...per dozen 54 00

No. 608—Heavy weight, will stand rough usage, same colors as No. 617, pearl buttons.....per dozen 36 00

No. 601—Medium weight, combination colors, Oxford with navy trimming Oxford with crimson trimmings, pearl buttons.....per dozen 30.00

ONE IN A BOX

BOYS' COAT SWEATERS.

Sizes 26 to 32.

No. 100—Good quality wool, colors, Oxford with crimson trimmings, pearl buttons .....per dozen $24.00

Other colors to order, one week delay.

ONE IN A BOX.

FOOT BALL GOODS.

RUGBY FOOT BALLS.

No 5X "Rev-o-noc" Official, best English grain leather, rawhide lace, lacing needle and pump, will hold its shape as all possible stretch has been removed in tanning, regulation size and weight, fully guaranteed, complete in box with bladder, - - - per dozen $60 00

No. 8S—"Rev-o-noc," best selected American grain leather, hand finished, lined with the finest quality canvas, official size, absolutely correct in shape, packed one in a box, with rawhide lace, lacing needle, pure gum bladder, guaranteed, - - - per dozen 48 00

No. 15—"Rev-o-noc," selected American grain leather, lined with superior quality canvas, official size, packed one in a box with rawhide lace and pure gum bladder, guaranteed, - per dozen 36 00

No. 14—"Cruso," same in all respects as No. 15, except slightly smaller, per dozen, - - - - - - - 33 00

No. 15S—"Cruso," pebbled leather, lined with heavy canvas, correct shape, regulation size, packed one in a box with bladder, - - - per dozen 24 00

No. 14S "Cruso" same as No. 15S only slightly smaller, packed one in a box with bladder, - - per dozen 20.00

ASSOCIATION FOOT BALLS.

No. 17AS—"Rev-o-noc," best English grain leather, official size, fully guaranteed, packed in box, complete with bladder, pump, lacing needle and rawhide lace, - - - per dozen $66 00

No. 16AS—"Rev-o-noc," finest selected American grain leather, lined with superior quality canvas, official size and pattern, packed one in a box with bladder, - - - per dozen 48 00

No. 15AS—"Cruso," high grade pebbled leather, lined with heavy canvas, regulation size, packed one in a box with bladder, - - - per dozen 24.00

RUBBER FOOT BALLS.

American Black Rubber.

Nos.	1	2	3
Circumference,	20	22	24 in.
Per dozen,	$6.60	7.20	9.00
Nos.	**4**	**5**	**6**
Circumference,	26	28	30 in.
Per dozen,	$10 20	10 80	12.00

Extra Keys, - - - - per dozen $0.60
Extra Valves, - - - " 1.20

RUGBY BLADDERS.

No. 1—Pure gum, size 3, - per dozen $6.00
No. 4—Pure gum, size 4, - " 7.50
No. 2—Pure gum, size 5, - " 9.00

ASSOCIATION BLADDERS.

No. 6 Pure gum, size 4 per dozen $7.50
No. 5—Pure gum, size 5, - " 9.00

INFLATERS.

No. 3—Pocket size, seamless, nickel plated, per dozen - - - - - $3.60

No. 2—Club size, seamless, nickel plated, wood handle, - - - per dozen $9 00

"REV-O-NOC" FOOT BALL PANTS.

Nos. 30, 32 and 25.

To Order Only.

No. 30—Finest quality heavy weight drab moleskin, cane thighs, full quilted on hips and knees, - per dozen pairs $48.00

No. 32—Genuine army khaki cloth, heavily padded, full quilted, cane strips, per dozen pairs, - - - - - - 36.00

No. 25—Best quality tan colored duck, cane thighs, full quilted on hips and knees, - - - per dozen pairs 24 00

AVERAGE WEIGHT PER DOZEN PAIRS 24 LBS.

No 23. No. 20.

To Order Only.

No. 23—Medium grade khaki, tan color, full quilted, - - per dozen pairs $15.00

No. 20—Good quality canvas, heavy white twilled drill, full padded and quilted, per dozen pairs, - - - - 9.00

AVERAGE WEIGHT PER DOZEN PAIRS 24 LBS.

"REV-O-NOC" FOOT BALL JACKETS.

To Order Only.

No. 2—Khaki, best quality, tan color, sleeveless, - - - per dozen $7 00

No. 1—Good quality extra heavy white twilled drill, sleeveless, - per dozen 5.00

REV-O-NOC TELEPHONES.

COMPACT.

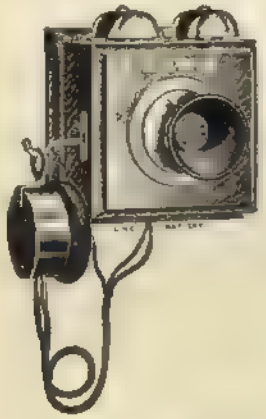
No. 7308E—3 bar series, 80 ohm ringer, each..... $17.50
No. 7410E—4 bar bridging, 1000 ohm ringer.....each 23.00
No. 7510E—5 bar bridging, 1000 ohm ringer.....each 24 50
No. 7516E—5 bar bridging, 1600 ohm ringer.....each 25.00
No. 7520E—5 bar bridging, 2000 ohm ringer.....each 26 00
No. 7616E—6 bar bridging, 1600 ohm ringer.....each 30 00

All Rev-o-noc Bridging telephones are equipped with patented SECRET SERVICE generators by means of which calls are made secretly on either grounded or metallic lines. A backward turn of the generator crank throws the switchboard drop but does not ring the bells of the subscribers upon the line. A forward turn signals the subscribers in the usual manner. No push buttons or relays are necessary; can be used on any line, in conjunction with all other makes of instruments now installed, and without making any change in the present service.

Cabinets are quarter-sawed oak, highly polished, are furnished with adjustable ringer movements, No. 20E long distance solid back transmitter, No. 33E receiver with concealed cord connection, induction coil, automatic switch hook, lightning arrester and two dry batteries.

Telephones equipped with condensers 35 cents extra net.

BATTERY CALL.

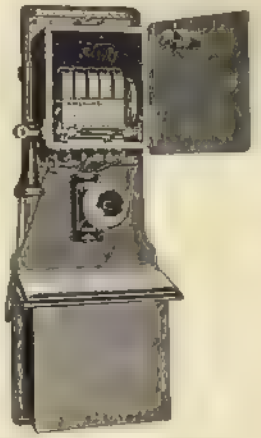


No. 6E—DUPLEX, with 2 batteries, complete and ready to install.....each $6 00

The duplex may be used in pairs and is especially adapted for use between two points, such as house and barn, office and warehouse, or from floor to another. Each instrument is furnished with a vibrating bell which will ring at a distance of 5000 ft. Where both phones are in the same building, annunciator wire is desirable.

If run outside No 802E is recommended.

STANDARD STYLE.



Wide Battery Box Style.

No. 8308E—3 bar series, 80 ohm ringer, each..... $17 50
No. 8410E—4 bar bridging, 1000 ohm ringer.....each 23 00
No. 8510E—5 bar bridging, 1000 ohm ringer.....each 24.50
No. 8516E—5 bar bridging, 1600 ohm ringer.....each 25.00
No. 8520E—5 bar bridging, 2000 ohm ringer.....each 26 00

These cabinets are quarter-sawed oak highly polished, and equipped with powerful secret service generator for ringing long lines, adjustable ringer movement, No 20E long distance solid back transmitter, No. 33E receiver, with concealed cord connection, induction coil, automatic switch hook, lightning arrester, two dry batteries. Wet batteries can be used if desired

Telephones equipped with condensers 35 cents extra net.

DESK SETS.

No. 113E—3 bar, series generator, 80 ohm ringer, mounted in same box, each $22 00
No. 114E—4 bar bridging generator, 1600 ohm ringer, mounted in same box, each 24 00
No. 115E—5 bar bridging generator, 1600 ohm ringer, mounted in separate boxes, each..... 26.00
No. 116E—6 bar bridging generator, 1600 ohm ringer, mounted in separate boxes, each..... 27.00

These desk sets have rubber grip, cast brass parts, nickel plated removable bottom plates, leather cushion, induction coil and terminal block, mounted in base. Price is for the set complete, including telephone, generator, ringer, terminal block, batteries and diagram of connection.

INTER-COMMUNICATING.

No. 641E— 4 stations . each $7 35
No. 642E— 8 stations " 7 65
No. 643E—10 stations ... " 7 95
No. 644E—12 stations " 8 25
No. 645E—16 stations . . " 8 85

No. 6603E—4 stations, with call buttons in base.....each $13 50
No. 6604E—8 stations, with call buttons in base.....each 15 30
No. 6605E—10 station, with call buttons in base . each 16 20
No. 6606E 12 stations with call buttons in base . each 17 10
No. 6607E—16 stations with call buttons in base . ...each 18 90

No. 1060E—Choke coil.....each $0 90
One choke coil is required for every system.

The inter-communicating are wired for central battery common talking circuit, all stations being connected to one pair of talking wires, but having call buttons on each telephone to the number required to call other stations without a central.

These telephones are superior in point of design, finish, accessibility for connecting up, durability and efficiency to any line of apparatus for a similar system ever produced.

Cables for installing these telephones can be furnished at not to exceed $10.00 per hundred feet, nine cells of dry battery will operate any size system complete, wiring diagram furnished with every outfit. Prices do not include cable or batteries.

TELEPHONE PARTS.

RECEIVERS.

No. 33E—With concealed cord.... each $1 80

This receiver is furnished on all our telephones. It is perfect in design. Tungsten steel magnets. The coils are wound with silk covered wire and cords so attached that by careless handling or dropping they do not break loose from terminals.

WATCH CASE RECEIVERS.

No. 164E—Double pole, solid rubber shell.....each $2.50

OPERATORS' RECEIVERS.

No. 133E—Complete with leather covered band and watch case receivers....each $4 00

TRANSMITTERS.

No. 20E—Solid back.....each $3 00

In general workmanship and finish, this transmitter represents the highest development of the art of transmitter construction.

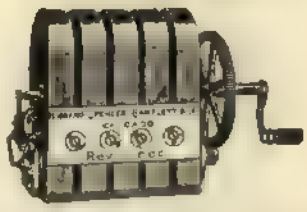
Every part is made of the very best materials procurable and constructed on strictly scientific and mechanical principles.

It embodies the latest features known and recognized as essential to good transmitter construction and is in every point in advance of any other transmitter now offered to the telephone public.

TELEPHONE MOUTH PIECES.

No. 613E—Male thread..... each $0 25
No. 615E—Female thread ..... " .25

GENERATORS.



No. 53E—3 bar series..... each $3 80
No. 54E—4 bar bridging..... " 5 50
No. 55E—5 bar bridging..... " 7 00
No. 56E—6 bar bridging..... " 8 00

Our generators are made in all the standard sizes, 3-bar for series work, 4, 5 and 6 bar for bridging work.

Both the series and bridging generators are of the same type and are built to stand hard and constant usage.

The armatures are made of a large number of laminations of the softest Swedish iron.

The permanent or field magnets are made from the best Tungsten steel and are subjected to a special secret treatment which insures the greatest permanency.

The output in amperage and E. M. F. is in excess of that of any other generator made.

RINGER MOVEMENTS.

No. 606E— 80 ohm series ringer.each $2 00
No. 610E—1000 ohm bridging ringer " 3 00
No. 616E—1600 ohm bridging ringer " 4 00
No. 620E—2000 ohm bridging ringer " 5.00

This improved type of ringer movement, we guarantee to be equal to any ringer movement now on the market. The cores and armatures are of the best grade annealed Norway iron. All coils, both for series and bridging work, are made long, which allows the use of a larger wire, giving more turns and not so liable to burn out from lightning or other causes. The wire used in winding these coils is insulated with pure silk. The adjustment of this ringer is easily accessible and very permanent, and being centrally located, it does not change the relative position of the clapper and gong.

RECEIVER CORDS

No. 47E—36 in. worsted, tips both ends, each..... $0 40
No. 48E—36 in. worsted, tips one end, slips on other end.....each .40
No. 49E—36 in. green silk, tips both ends, each..... 60

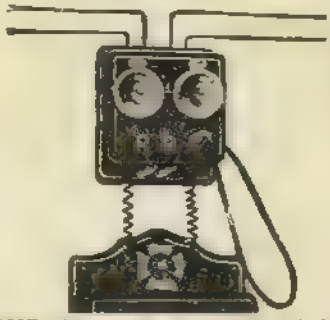
No. 47E is most commonly used

TESTING SETS.

No. 423E—4 bar generator, watch case receiver, in oak case 7¼×6×8 in., w't 12 lbs.....each $24.00

Used in locating trouble on either a series or bridging line.

TOLL LINE EXTENSION BELL SWITCHES.



No. 3120E—Extension bell.....each $10 00

At times long toll lines are tied up because two stations near each other are talking. By using this extension bell several conversations can be carried on at the same time. Connections are made by the use of a key, which, when placed at the right the telephone is connected at the right hand line, leaving the left hand line clear. When the key is at the left the right hand line is clear and when in the center the lines are connected together and the telephones are bridged across.

Should be same resistance as telephones on line.

EXTENSION BELLS.

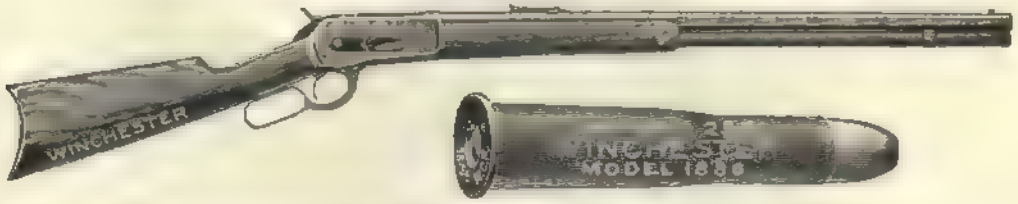
No. 318E— 80 ohm series .....each $3 00
No. 319E—1000 ohm bridging..... " 4.50
No. 320E—1600 ohm bridging..... " 5 00
No. 321E—2000 ohm bridging..... " 6.00

These bells are used in connection with telephones, enabling one to get the signal of the regular telephone when at a distance. The telephone may ring in one part of the building and by the aid of an extension bell the signal can be given in another part, wherever the bell is placed.

Should be same resistance as telephone to be used with.

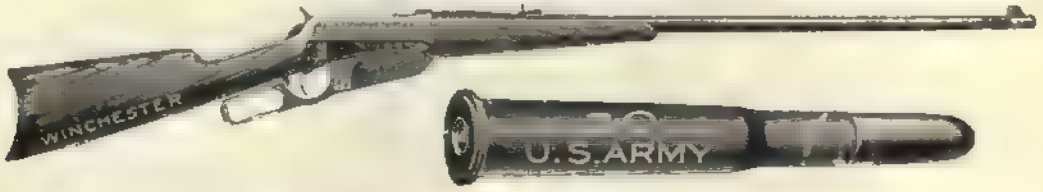
WINCHESTER REPEATING RIFLES.

MODEL 1886.



No. 3306—38-56 caliber, 26 in. octagon barrel plain trigger, case-hardened, 9 shots, weight 9¼ lbs., - - - - each $21 00
No. 3404—33 caliber, 24 in. round steel barrel, 8 shots, weight 7¾ lbs., ivory hunting front sight, - - - - " 25 00
No. 2706—40-82 caliber 26 in. octagon barrel, plain trigger, case hardened, 8 shots, weight 9¼ lbs., - - - - " 21 00
No. 2906—45-70 caliber 26 in. octagon barrel plain trigger, case hardened 9 shots, weight 8¼ lbs., - - - - " 21 00
No. 3106—45-90 caliber, 26 in. octagon barrel, plain trigger, case hardened, 8 shots, weight 9¼ lbs., - - " 21 00
TEN IN A CASE.

MODEL 1895.



No. 3048—30 U. S Army caliber, 28 in. round nickel steel barrel 6 shots weight 8½ lbs., - - - - - - each $30.00
No. 2920—30 U. S. Army, 22 in. round barrel carbine, plain trigger, 6 shots, weight 8 lbs., - - - - - - " 30.00
No. 3976—38-72, 26 in. octagon barrel, weight 7½ lbs., - - - - - - - - - - " 25.00
No. 5024—35 caliber, 24 in. round nickel steel barrel, 5 shots, weight 8½ lbs.' - - - - - - - - " 30.00

MODEL 1905 SELF-LOADING, TAKE DOWN.

No. 7032—32 caliber, 22 in. round barrel, plain walnut stock and forearm, weight, about [illegible] lbs., each $28 00
No. 7035—35 caliber, otherwise same as 7032, - - - - - - - - - - - - " 28.00
Extra Magazines with follower guides for Nos. 7032 and 7035, - - - - - - - - - - - - - " 1.50

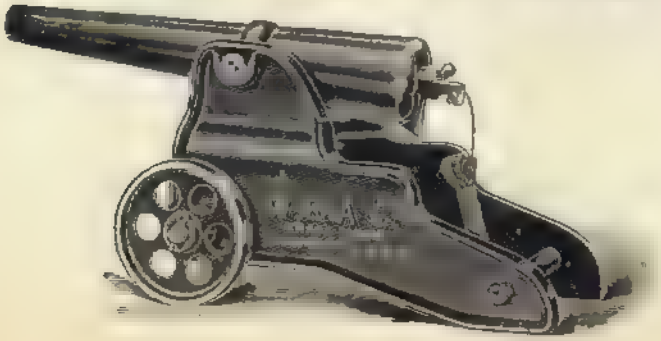
MODEL 1907 SELF-LOADING, TAKE DOWN.

Ammunition, Smokeless.

.351—Winchester Self-Loading, metal case or soft point, 2M in a case, w't 72 lbs, - - - per M $32.00

No. 351 35 caliber, 20 in., round nickel steel barrel, pistol grip plain walnut stock, not checkered, 6 shots, w t about 7¾ lbs., each $28 00

WINCHESTER BREECH LOADING CANNONS.



For Saluting and Celebrating.

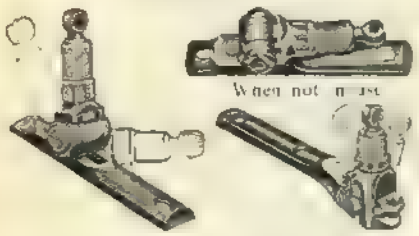
No. 100—10 gauge, 12 in., rolled steel, blued barrel, japanned cast iron frame, 3⅝ in. wheels, entire length 17 in., cylinder bored, 7¼ in. wide, weight 14 lbs., - - each $7.00

It is simple in construction and easy to handle. Either brass or paper shells can be used. A proper extractor is provided for taking out the fired shell. The barrel can be raised or lowered by elevating a screw placed underneath it. The load is 9 drams of black powder with two black edge wads and one cardboard wad to produce the loudest report

10 Gauge Shells, loaded with black powder, for No. 100 cannon, - - - - - - - per 100 $2 50

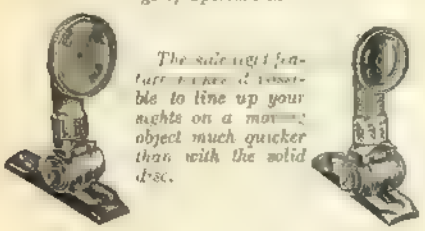
RIFLE AND SHOT GUN SIGHTS.

MARBLE'S.



No. 51—Automatic flexible joint, rear for Winchester, Marlin and Savage rifles each $5 00

When not locked down, a simple spring in the hinge joint instantly brings it into proper position, should it be struck on front or back. It can be used on all rifles with long firing bolts. The lower sleeve is a jamb nut which prevents the elevating sleeve from turning and holds the disc stem rigid at any elevation. Interchangeable disc allows change of aperture at will.



The sole sight feature makes it possible to line up your sights on a moving object much quicker than with the solid disc.

No. 52 No. 53.

No. 52—Rear, with cup disc, otherwise same as No. 51..... each $3 50
No. 53—Rear with side light . . . . " 3 50

No. 54—Rear, with long base, particularly adapted to the Winchester box magazine rifles, otherwise same as No. 51, each. $3 00

No. 60. No. 41.

No. 60—Rear, folding leaf sight... each $1 00
No. 41—Improved, front, for any rifle of any caliber, 1/8, 3/16 or 1/4 in. bead, of ivory, German silver, gold alloy or aluminum.....each 1.00

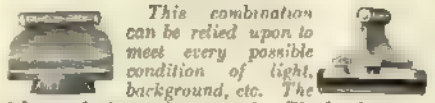
It is possible with this improved front sight to see under as well as over, on long range where haste is necessary to adjust the rear sight; accuracy is insured by the fact that the object aimed at can be seen under the sight

No. 42 No. 71 No. 71

No. 42—Standard front bead, for any rifle of any caliber 1/8, 3/16 or 1/4 in. bead, of ivory .....each $1 00
No. 71—Triple bead front, blued steel, with black, ivory and gold beads, sight revolves in either direction by slight pressure of thumb, for all guns having slot for front sight..... each 1 50

No. 71 sight combines into a revolving sight the three best front sights which have been made allowing the use of either an ivory, black or gold bead, as desired. Can be instantly changed to suit conditions of light or background. In ordering mention make and caliber of rifle.

MARBLE'S.



This combination can be relied upon to meet every possible condition of light, background, etc. The sight can be instantly reversed. The bead carrier can be pulled up against the pressure of the spring until it clears the base slot—then turn it around.

No. 61—Reversible front one ivory and one gold, both same size furnished in either size 1/8 or 3/16 in each $1 50

No. 1

LYMAN'S.

No. 2

No. 1 sight will suit all American rifles, but when ordering state if rifle has pistol-grip stock and be careful to give model and caliber

The optical principle involved in this sight is entirely new in its application, and is more easily seen than explained

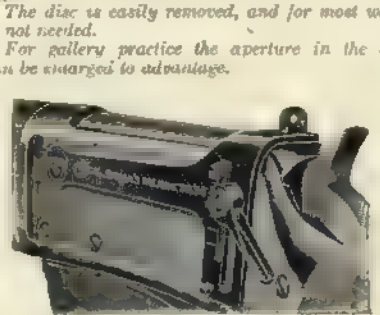
When aiming this sight has the appearance of a ring or hoop, which shows the front sight and the object aimed at, without intercepting any part of the view

No. 1—Combination rear, for Marlin models '94, '92, '97 '93, in 38-55 calibers, and '93, in 30-30 and 25-30 calibers. Winchester S S., '86, '90 in 25 36 and 30 30 and '94 in 38 55 and 38-56, 22 automatic '02 and 05 self-loading Savage ... '03 and 20 30 Stevens' Ideal and Favorite ... .each $3 00
No. 2—Combination with cup disc, for Marlin models '20, '92, '93, Winchester '90, '94 and Savage .303 and 30-30 calibers. .....each 3 50

The No. 2 sight has a large detachable disc and is intended for match rifles and gallery rifles. It is not as good for "all around" shooting as the $3.00 combination sight. Many target shooters like it, as it is much better than the Vernier peep sight

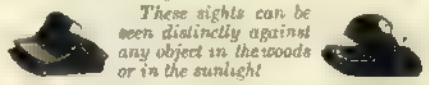
The disc is easily removed, and for most work is not needed.

For gallery practice the aperture in the disc can be enlarged to advantage.



No. 21—Receiver for Winchester models '94, '95 and Savage.....each $3 50

These sights can be seen distinctly against any object in the woods or in the sunlight



No. 3 No. 4

No. 3—Ivory front bead, Standard, 22 caliber, Marlin, Winchester and Colt's, 40 cal Marlin, Savage and Winchester, 303 Savage and Stevens' Favorite rifles. .....each $1 00
No. 4—Ivory hunting front for same calibers as above.....each .50

LYMAN'S.

No. 24. No. 26

No. 24—Jack, for Winchester model '95 rifles and carbines. ..... each $0 50
No. 26—Ivory bead, for Winchester model '95 rifles and carbines.....each 50

"Standard" Lyman front sights will fit Marlin models '81, '94, '95, '93 in 32-40 and 38-55 calibers, Winchester '73, '76, '86, '92, and all Winchester 3 inch slots, excepting 56 & 1 also Remington Nos. 4, 2 and 6

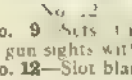
In ordering sights, particular attention should be paid in regard to make, caliber and size of arm.

No. 5—Combination ivory front Standard, model 20 Marlin '22 caliber Marlin and Winchester '02 and '05 Winchester self-loading 30 30 Marlin, Savage and Winchester, .303 Savage, Stevens Favorite and Ideal each $1.00

No. 6 No. 7 No. 1 and 9.

No. 6—Rear Standard Marlin models '92 '97 and '98 Winchester model '94 in 30 30 and 25 35 calibers only, also Savage and Stevens' Favorite.... each $1 00

One leaf is a bar with triangular ivory cener, the other is a wide open V crotch



No. 12

No. 11—Ivory shot gun, rear. ....each $0 50
No. 10—Ivory shot gun, front. . . each .50
No. 9 Sets ivory front and rear shot gun sights with reamer per set 1 00
No. 12—Slot blank .....each .25

MARLIN.

Rocky Mountain Rear, Buckhorn low and high .....each $0 80
Extra Steps, for above .....“ .25

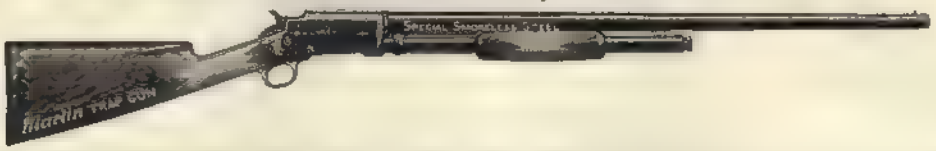
Rocky Mountain Front Front Rear
Rocky Mountain Front, knife edge each $0 50
22 Caliber Front 50
22 Caliber Rear 50

No. 30—Receiver, for Marlin rifles made after Aug. '03, graduated peep or open sight. ..... each $3 25

This sight gives greatest possible distance between front and rear sights, without in any way interfering with grip of right hand. No danger of injuring the shooter's eye by recoil or hasty throwing of rifle to the shoulder. With one movement it can be run up to the highest or lowest point. Rifles made before above date require two holes to be drilled and tapped in rifle receiver.

REPEATING SHOT GUNS.

MARLIN MODEL 1240 TRAP, "TAKE DOWN."



No. 1240—12 gauge, 6 shots, special smokeless steel barrel, full choke bored, frame finest quality gun frame steel cut from the solid drop forging, frame and breech bolt have blued finish, side ejection, closed top, stock and fore-end are Circassian walnut with oil finish and fine hand checking, straight grip, hard rubber butt-plate, stock 14 in. long, 1¾ in. drop at comb, 1⅞ in. drop at heel, 30 in. barrel, weight about 7¾ lbs. ..... each $38.00

The barrel is special smokeless steel, nearly twice as hard and strong as the rolled steel barrel used in other trap guns—specially built and bored for trap loads. It is guaranteed to make the extremely close, hard hitting, ideal trap gun pattern—more than 325 pellets of No. 8 chilled shot in a 30-inch circle at 40 yards.

Like every other Marlin repeater, the trap gun has the Marlin solid top, side ejector and closed-in breech. It can't freeze up with rain, snow or sleet, rain can't run into the action and swell the shells in magazine. Dirt, leaves, twigs and sand are also excluded from the action. The closed-in breechbolt not only protects the gun and the shooter but also gives a symmetrical breech that aids in sighting and helps good shooting.

EXTRA BARRELS FOR MARLIN GUNS.

26 or 28 in., blued steel, cylinder, modified or full choke bored. ..... each $13 75
30 in., blued steel, full choke bored ..... " 13 75

It is often desirable to have two or more barrel parts complete, to interchange on the same action and butt-stock. So superior are the design and workmanship on Marlin repeaters that this can be done without sending the action to the factory to have the extra parts specially fitted. Any Marlin barrel part of any grade will fit any Marlin action of any grade. A useful combination is the regular 30 or 32 in. full choked gun, suitable for ducks, live birds, targets, etc., and an extra barrel part, complete, for brush work.

WINCHESTER MODEL 1897.

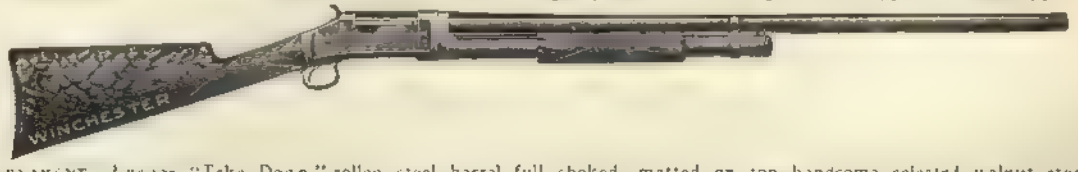
No. 29—12 gauge, 6 shots, rolled steel blued barrel, full choked, rubber butt-plate, plain half pistol grip stock, length 13¾ in., drop at comb 1¾ in., at heel 2½ in., 30 or 32 in. barrel, 30 in. only in modified choke, weight 7¼ lbs. ..... each $25.00

We also carry No. 29 guns 30 in. barrel full choke in Model 93 stock, length of stock 13 in., drop at comb 1¾ in., at heel 2¾ in.

WINCHESTER MODEL 1897 "TAKE DOWN."

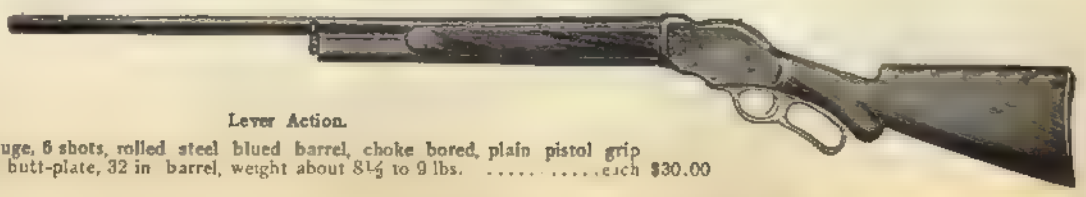
No. 29TD—12 gauge, "Take Down," 6 shots, rolled steel barrel, either full choked, modified or cylinder, rubber butt-plate, plain pistol grip stock, length 13¾ in., drop at comb 1¾ in., at heel 2½ in., 28, 30 or 32 in. barrel, weight 7½ to 8 lbs. ..... each $27.00
No. A29TD—30 in. full choke barrel, with *extra* 26 in. cylinder bored barrel, rubber butt plate, in both Model 97 and Model 93 stocks, otherwise same as No. 29 T. D. ..... each 42 00
No. B29TD—30 in. full choke barrel, with *extra* 28 in. modified choke barrel, otherwise same as No. 29TD. ..... " 42.00
No. 29TD—Rubber butt-plate, 26 in. barrel either full choked, modified choked, or cylinder bored, otherwise same as No. 29TD ..... " 27.00
No. 1629TD—16 gauge, "Take Down," 28 in. barrel either full choked or modified, otherwise same as No. 29TD, length 13½ in., drop at comb 1¾ in., at heel 2½ in. ..... each 27.00

We also carry No. 29TD and 1629TD in Model 93 stock, length of stock 13 in., drop at comb 1¾ in., at heel 2¾ in.



No. 139TD—Tournament, 12 gauge, "Take Down," rolled steel barrel, full choked, matted on top, handsome selected walnut stock, well shaped straight grip, checked rubber butt-plate, 14 in. stock, drop at comb 1¼ in., drop at heel 1½ in., 30 in. barrel, wt. 7¾ lbs. ..... each $42 00
No. 129TD—12 gauge, "Take Down," "Trap," rolled steel barrel, full choked, fancy walnut hand made oil finished stock, with checked straight grip, checked rubber butt-plate, 30 in. barrel, w't about 7¾ lbs. ..... each 52 00

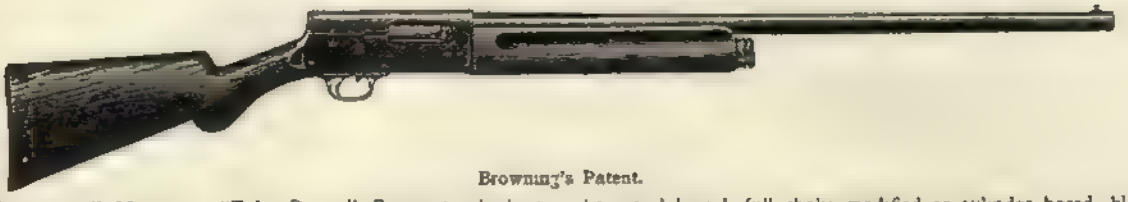
WINCHESTER MODEL 1901.



Lever Action.

No. 930—10 gauge, 5 shots, rolled steel blued barrel, choke bored, plain pistol grip stock, steel butt-plate, 32 in. barrel, weight about 8½ to 9 lbs. ..... each $30.00

REMINGTON AUTOMATIC SHOT GUNS.



Browning's Patent.

No. 1P —"STANDARD," 12 gauge, "Take Down," Remington highest quality steel barrel, full choke modified or cylinder bored, blued frame and mountings, 5 shots, side ejection, matted receiver, walnut stock, pistol grip, rubber butt-plate, length of barrel 28 in., length of stock 14⅜ in., drop at comb 1⅞ in., drop at heel 2½ in., weight 7¾ lbs. ..... each $40.00

No. 1PR—Fitted with 28 in. full choke bored barrel with raised matted rib otherwise same as No. 1 ..... " 47.00

No. 1PB—28 in. full choke, with *extra* 26 in. cylinder bored barrel, otherwise same as No. 1 ..... " 56.00

No. 2P —"SPECIAL," 12 gauge, "Take Down," Remington highest quality steel barrel, full choke or cylinder bored, blued frame and mountings, 5 shots, side ejection, matted receiver, selected English walnut stock pistol grip, *checkered grip and fore-end*, rubber butt-plate, length of barrel 28 in., length of stock 14⅜ in., drop at comb 1⅞ in., drop at heel 2½ in., weight 7¾ lbs. each 50.00

Browning's Patent.

No. 3P —"TRAP," 12 gauge, "Take Down," Remington highest quality steel barrel, choke bored, blued frame and mountings, 5 shots, side ejection, matted receiver, selected English walnut stock, *checkered straight grip and fore-end*, rubber butt-plate, length of barrel 28 in., length of stock 14 in., drop at comb 1½ in., drop at heel 2¼ in., weight 7¾ lbs ..... each $50 00

No. 3AP—28 in. full choke barrel, with *extra* 28 in. cylinder bored barrel, otherwise same as No. 3 ..... " 66.00

No. 4P —TOURNAMENT, 12 gauge, "Take Down" Remington highest quality steel barrel, choke bored, blued frame and mountings, 5 shots side ejection, matted receiver, fine English walnut stock, checkered pistol grip and fore-end rubber butt-plate, extra scroll engraving, fine checkering length of stock 14⅜ in., drop at comb 1⅞ in., drop at heel 2½ in., weight 7¾ lbs. On this gun any length or drop of stock desired will be made to order without additional charge ..... each 70 00

In loading gun, draw operating slide back, drop a shell in the receiver and press button with finger of left hand. This allows the carrier to be pressed down and the shells to be inserted in the usual manner, from the bottom. Shells can be put in the magazine at any time when breech is closed, whether the magazine is empty or partly full. The breech will remain open after the last shot is fired. To take down, unscrew the magazine cap while holding the fore-end down so the cap will unscrew freely and slide the barrel and fore-arm forward and off.

REMINGTON SOLID BREECH REPEATING SHOT GUNS.

MODEL 1908, HAMMERLESS.

No. 150—"STANDARD," 12 gauge, "Take Down," Remington steel barrel, 6 shots, choke or modified bored, blued finish, matted rib on receiver, walnut stock and fore-end, pistol grip, length of stock 13¾ in., 2½ in. drop at heel, drop at comb 1½ in., length of barrel 30 in., weight 7½ lbs. ..... each $27.00

No. 160—"FIELD," 12 gauge, "Take Down," Remington steel barrel, 6 shots, cylinder bored, blued finish, matted rib on receiver, walnut stock and fore-end, pistol grip, length of stock 13¾ in., drop at heel 2½ in drop at comb 1½ in., length of barrel 26 in., weight 7¼ lbs. ..... each 27.00

No. 170—"TRAP," 12 gauge, "Take Down," "blued" steel barrels, matted rib on receiver, bored to shoot smokeless powder and to target 300 pellets or over of No. 7½ chilled shot inside of a 30 in circle at 40 yds, with a load of 3¼ drs of smokeless powder and 1¼ oz. of shot, which is practically 75% of charge, chambered for 2¾ in shells, selected English walnut stock, straight grip stock with full comb, finely checkered stock and fore-end, rubber butt-plate, length of stock 14¼ in., drop at heel 2 in., drop at comb 1⅝ in., length of barrel 30 in., weight 7¾ lbs. ..... each $47

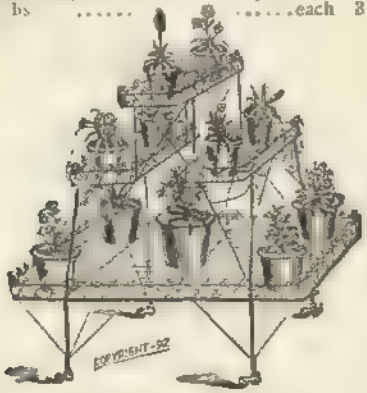
Any variation from dimensions given in description of Nos. 50, 60, and 70 will be subject to an additional charge of $10.00 list.

WIRE FLOWER POT STANDS.

No 439. No 440.

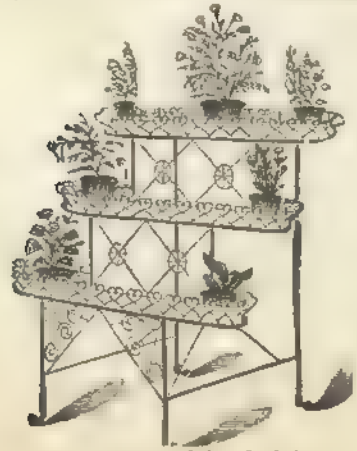
No. 439—Height 16 in., diam. 14 in., holds 1 to 3 pots, w't 6 lbs.....each $2 00

No. 440 Height 20 in., length 27 in., width 10½ in., holds 6 to 10 pots, w't 8 lbs.....each 3.00



No. 393¾—5 step Pyramid, height 36 in., three 22 in. shelves, bottom shelf 40×22 in., holds 24 to 30 pots, w't 19 lbs. each $6 50

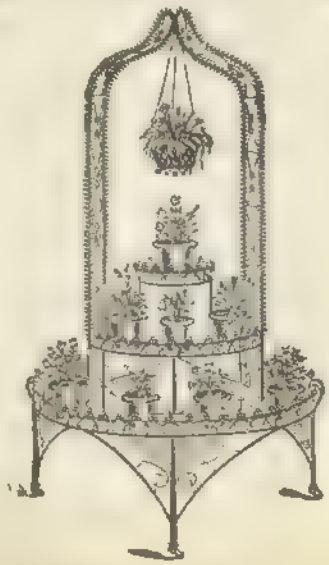
No. 435—Semicircular, height 42 in., width 48 in., depth 32 in., holds 24 to 30 pots, w't 21 lbs.....each $6 50



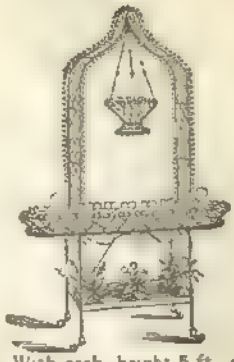
No. 434—Wall, height 42 in., 3 shelves, 3 ft. 2 in. long, holds 24 to 30 pots, w't 20 lbs.....each $6 50

No. 443½—Square, height 32 in., depth 18 in., 2 shelves 33 long, holds 12 to 15 pots, w't 12 lbs.....each $4 00

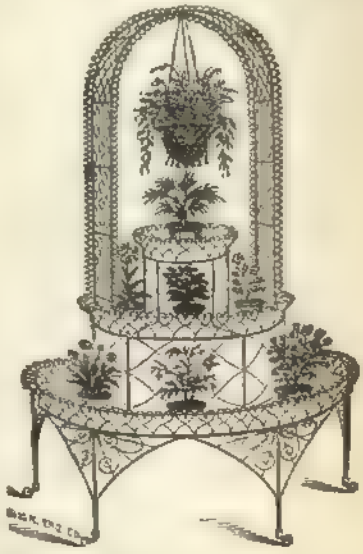
No. 443—Square, with arch and basket, height 68 in., length 33 in., depth 18 in., 2 shelves, holds 12 to 15 pots, w't 17 lbs. each. $5 50



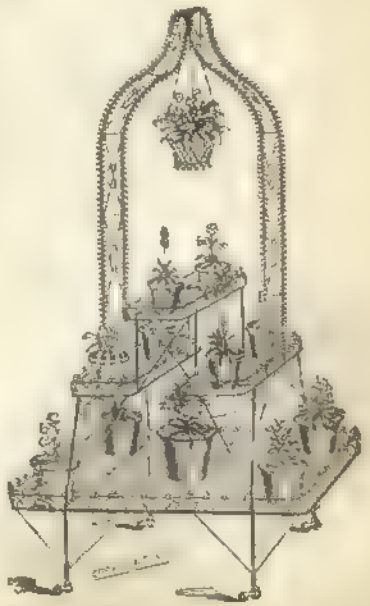
No. 392½—Semicircular, with arch and basket, height 68 in., width 40 in., depth 28 in., holds 18 to 24 pots, w't 21 lbs.....each $7 00



No. 440½—With arch, height 5 ft., shelf 32×10 in., holds 6 to 10 pots, w't 12 lbs.....each $4 00



No. 430—Semicircular, with arch and basket, height 78 in., width 48 in., depth 32 in., holds 24 to 30 pots, w't 27 lbs.....each $8 00



No. 393¼—Pyramid, with arch and basket, height 69 in., three 22 in. shelves, bottom shelf 40×20 in., holds 24 to 30 pots, w't 25 lbs.....each $7.50

ALL STANDS ILLUSTRATED ON THIS PAGE ARE PAINTED GREEN, ORNAMENTED WITH GOLD BRONZE

WIRE FLOWER POT STANDS.

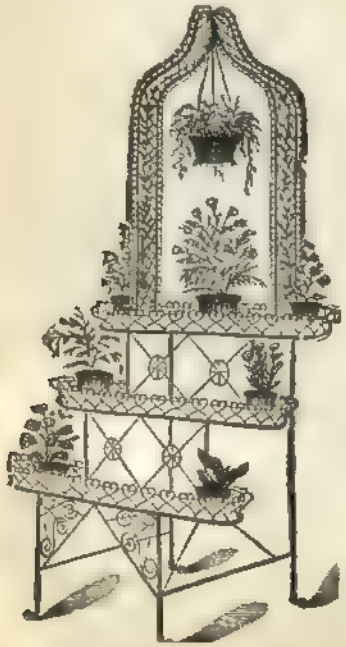
No. 435½—Semicircular, height 36 in., width 42 in., depth 28 in., holds 18 to 24 pots, w't 15 lbs.....each $5.50

No 395.

No. 395—Wall, height 38 in., width 42 in., depth 24 in., holds 30 to 40 pots, w't 22 lbs.....each $8 00

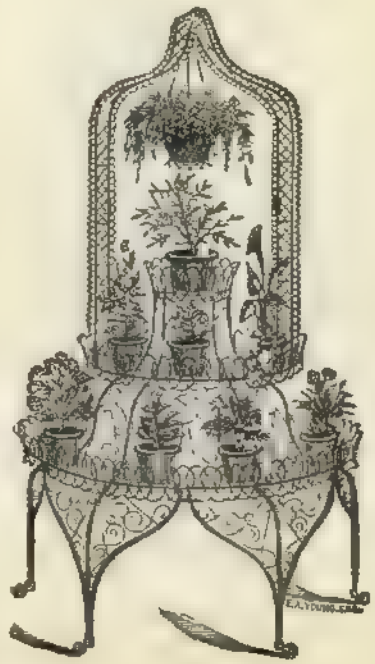
No. 432½—Wall, *with arch and basket,* height 78 in., width 42 in., depth 24 in., holds 30 to 40 pots, w't 27 lbs....each 9.50

No. 432 1-2 is same as 395 but with arch and basket.



No. 432—Wall, with arch and basket, height 78 in., depth 30 in., three 30 in. shelves, holds 24 to 30 pots, w't 25 lbs., each.....$8 00

No. 393—Pyramid, with arch and basket, height 78 in., width 48 in., depth 22 in., holds 35 to 40 pots, w't 35 lbs.....each $10.00



No. 398—Semicircular, with arch and basket, height 80 in., length 48 in., depth 32 in., holds 26 to 32 pots, w't 30 lbs.....each $10 00

No. 393½—7 step pyramid, height 42 in., width 48 in., depth 22 in., holds 35 to 40 pots, w't 29 lbs.....each $8 50

No. 397—Semicircular, height 44 in., length 48 in., depth 32 in., holds 26 to 32 pots, w't 24 lbs.....each $8.50

No. 394—Square top 3 steps, height 60 in., width 42 in., depth 24 in., holds 35 to 40 pots w't 28 lbs.....each $10 00

ALL STANDS ON THIS PAGE ARE PAINTED GREEN, ORNAMENTED WITH GOLD BRONZE.

WOODEN MINNOWS.

REV-O-NOC

REV-O-NOC minnows are the best made for catching game fish. Actual tests have shown that REV-O-NOC wooden minnows catch double the quantity of fish that can be caught by the use of live bait.

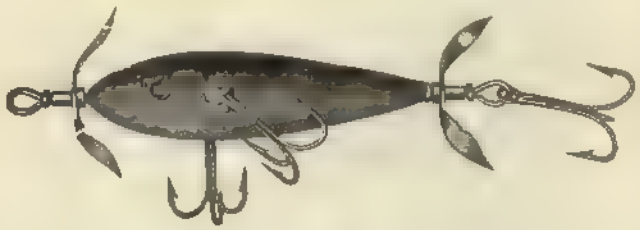
Bodies—of all REV-O-NOC minnows are made of extra selected red cedar, coated with several applications of the best water-proof porcelain enamel, which will not peel off or crack after having been in the water. Their bright and attractive lustre is a sure lure to all game fish.

Hooks—are of the treble pattern, made of best steel wire and are fastened to the sides and tail in such a way as not to scratch body of the minnow. Hooks may be changed at any time from large to small, or vice versa.

Eyes—are of glass, very life-like in appearance, and are well set into the head.

Spinners—Each minnow is fitted with two nickel plated spinners, one at head and the other at the tail, which revolve very swiftly, giving the minnow, in the water, the appearance of being alive

Materials and Workmanship—The high grade materials used and the expert workmanship in the manufacture of REV-O-NOC minnows, combined with their "fish-catching" qualities, make them the most popular on the market today.



No. 1000

3 Inch Body, Glass Eyes, with Three Treble Hooks.

No. 1000 REV-O-NOC—Fancy green back with white belly, w't ¾ oz., per dozen..... $7 20

No. 1001 REV-O-NOC—Rainbow, green stripe, pink blending, white belly, w't ¾ oz.....per dozen 7 20

No. 1002 REV-O-NOC—Red back blending to yellow belly, w't ¾ oz., per dozen..... 7 20

No. 1003 REV-O-NOC—Red, w't ¾ oz.....per dozen 7 20

No. 1004 REV-O-NOC—Aluminum, w't ¾ oz..... " 7 20

ONE IN A BOX; TWELVE IN A CARTON.

No. 2000

3½ Inch Body, Glass Eyes, with Five Treble Hooks.

No. 2000 REV-O-NOC—Fancy green back with white belly, w't ¾ oz., per dozen..... $9 00

No. 2001 REV-O-NOC—Fancy rainbow green stripe, pink blending, white belly, w't ¾ oz.....per dozen 9.00

No. 2002 REV-O-NOC—Red back blending to yellow belly, w't ¾ oz., per dozen..... 9.00

No. 2003 REV-O-NOC—Red, w't ¾ oz.....per dozen 9.00

No. 2004 REV-O-NOC—Aluminum, w't ¾ oz..... " 9 00

ONE IN A BOX; TWELVE IN A CARTON.

KETCH FISH.

3 Inch Body, Glass Eyes, with Three Treble Hooks.

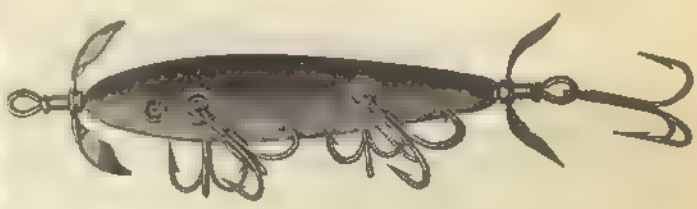
No. K8—Fancy green back with yellow belly, w't ½ oz.. per dozen $5 50

No. K9—Fancy red back blending to yellow belly, w't ½ oz., " 5.50

These are excellent wooden minnows, made of the same high grade material as the Rev-o-noc, but with fewer coats of enamel.

ONE IN A BOX; TWELVE IN A CARTON.

KETCH FISH.



3½ Inch Body, Glass Eyes, with Five Treble Hooks.

No. K88—Fancy green back with yellow belly, w't ¾ oz..per dozen $6.40

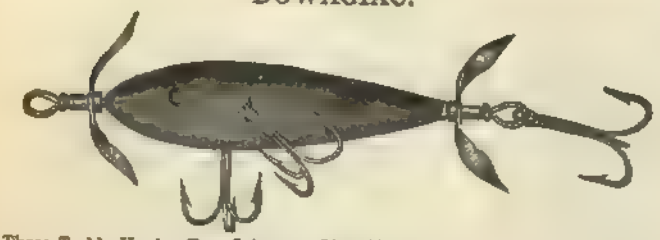
No. K89—Fancy green back with yellow belly, w't ¾ oz.. " 6 40

These are excellent wooden minnows made of the same high grade material as the Rev-o-noc but with fewer coats of enamel.

ONE IN A BOX; TWELVE IN A CARTON.

WOODEN MINNOWS.

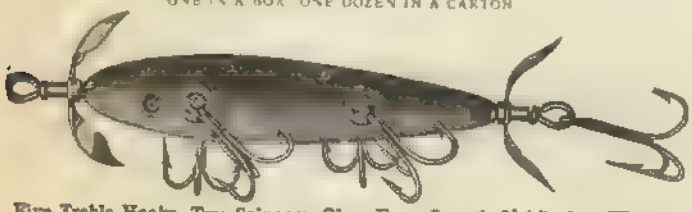
DOWAGIAC.



Three Treble Hooks, Two Spinners, Glass Eyes, Length 3½ Inches, Weight About 1 Ounce.

No. 100—Fancy back, with white belly	per dozen	$10	50
No. 101—Rainbow effect	"	10	50
No. 102—White	"	10	50
No. 103—Aluminum	"	10	50
No. 104—Red	"	10	50
No. 105—Yellow	"	10	50
No. 107—Fancy brown back with red blended sides and yellow belly	per dozen	10	50

ONE IN A BOX. ONE DOZEN IN A CARTON

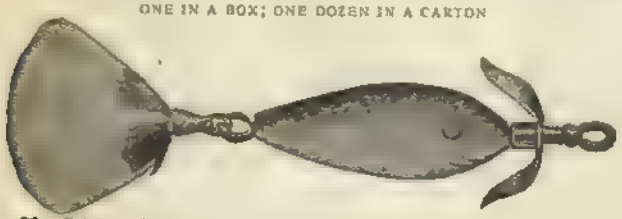


Five Treble Hooks, Two Spinners, Glass Eyes, Length 3½ Inches, Weight About 1 Ounce.

No. 150—Fancy back, with white belly	per dozen	$12	00
No. 151—Rainbow effect	"	12	00
No. 152—White	"	12	00
No. 153—Aluminum	"	12	00
No. 154—Red	"	12	00
No. 155—Yellow	"	12	00
No. 157—Fancy brown back, with red blended sides and yellow belly	per dozen	12	00

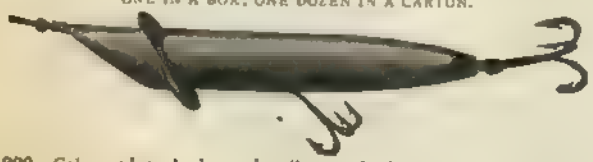
These hooks are prevented from tangling or interlocking by patented "Dowagiac" method attachment; they are underwater baits, but sink slowly and are water-proof.

ONE IN A BOX; ONE DOZEN IN A CARTON



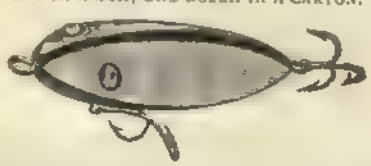
No. 50—Color, yellow, fancy mottled back and gilt metal parts, one treble hook, length 4 in., w't ⅝ oz. ..... per dozen $8 40
No. 51—Gold body, with reddish sides and green and gold back, otherwise same as No. 50 ..... per dozen 8.40

ONE IN A BOX; ONE DOZEN IN A CARTON.



No. 200—Color, white body, red collar, and blue front or head, two treble hooks, length 4½ in., w't ½ oz., ... per dozen $10 50

ONE IN A BOX; ONE DOZEN IN A CARTON.

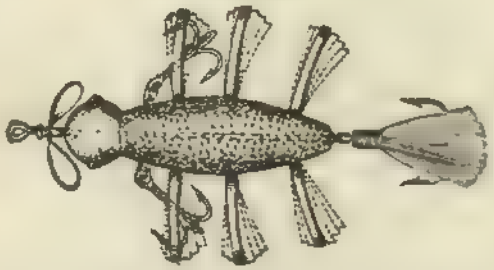


Two Treble Hooks, Length 4½ Inches, Weight About 1 Ounce.

No. 900—Fancy green stripe down back with red blended sides and white belly ..... per dozen $12.00
No. 901—Fancy green stripe down back with red blended sides and yellow belly ..... per dozen 12 00

ONE IN A BOX, ONE DOZEN IN A CARTON

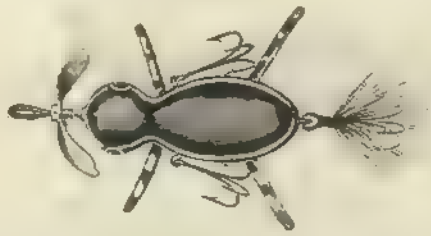
ROAMER.



Three Treble Hooks, One Spinner, Glass Eyes, Length 3½ Inches, Weight About 1 Ounce.

No. 420—Body 3 in. long, green back, yellow belly ..... per dozen $12.00
No. 487—Body 3 in. long, yellow body with gold spots, red head, per dozen 12.00

ONE IN A BOX.



Three Treble Hooks, One Spinner, Glass Eyes, Length 1¾ Inches, Weight About 1 Ounce.

No. 620—Body 1¾ in., green back, yellow belly ..... per dozen $12 00
No. 630—Body 1¾ in., fancy back, white belly ..... " 12 00

Roamer Bait is a very effective fish getter, good everywhere. It is a top water bait and attracts the big ones. Short jerks make the bait more effective. The legs are always working, thus adding to the lifelike appearance. Three treble hooks (two plain and one feathered).

ONE IN A BOX.

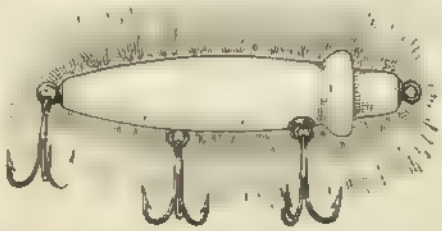
IMP.

Three Plain Treble Hooks, Wood Body 2½ Inches Long, Weight About 1 Ounce.

No. X20—"IMP" green back, yellow belly ..... per dozen $2 40
No. X30—"IMP" green back, white belly ..... " 2 40

ONE DOZEN IN A BOX.

MOONLIGHT.



No. 86—Luminous, painted white, three treble hooks, length 4 in., w't about 1 oz. ..... per dozen $13.00

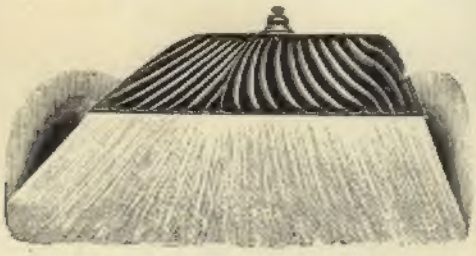
This bait possesses the peculiar quality of absorbing daylight or strong artificial light, and reflecting the same in the dark. It emits a clear white light, which is made more effective by the radiant power of the water. A well exposed bait is good for the whole night.

Can be used for trolling, but preferably for casting.

ONE IN A BOX.

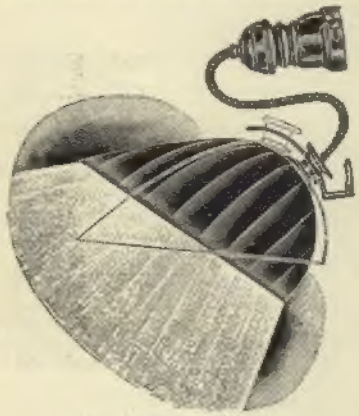
X-RAY REFLECTORS AND SHADES.

"POKE BONNET" WINDOW REFLECTORS.



No. 750E. Fig. A.

No. 750E. Showing Lamps and Socket Connector.



No. 750E. End View.

No. 750E—Complete, wired ready to install, - each $6.50
No. 751E—Complete, wired with 1 ft. stem, - " 7.25

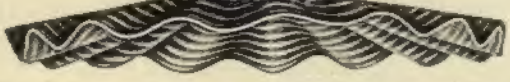
Each "Poke Bonnet" is made in 14 in. sections. They can be used as a continuous trough, but its efficiency is so great it is usually installed some distance apart.

EIGHT IN A BARREL. GROSS WEIGHT ABOUT 70 LBS.

CEILING REFLECTORS.

No. 660E—Flat, 14 in. diam., for 3¼ in. holder, per dozen $18.00
No. 661E—Flat, 16 in. diam., for 3¼ in. holder, " 21.00
No. 662E—Flat, 18 in. diam., for 3¼ in. holder, " 24.00

NO. 660E, 1¼ DOZEN; NOS. 661E AND 662E, 1 DOZEN IN A BARREL.



No. 695E—Flat, 8 in. diam., for 2¼ in. holder, per dozen, $10.50
No. 693E—Flat, 10 in. diam., for 2¼ in. holder, " 12.00

NO. 695E, 3 DOZEN; NO. 693E, 1½ DOZEN IN A BARREL.

HELMET REFLECTORS.

No. 850E. Fig. A.

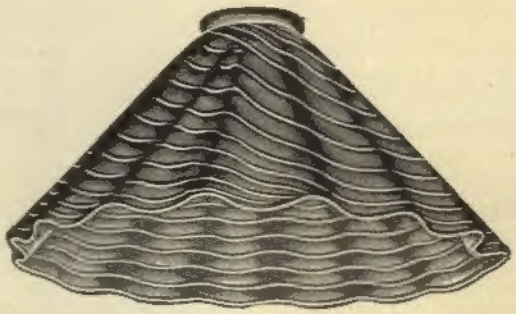
No. 850E. Fig. B.

No. 850E—Diam. 12½ in., height 11½ in., for 3¼ in. holder, - - - - - - - each $6.00

This reflector is recommended for high and shallow windows and take a single 125 watt, 50 candle power high efficiency gem lamp. All light is concentrated in the window. It shows a great increase in illumination and decrease in current. The tip and candle power is over 400 or about three times as great as any other concentrating reflector.

FOUR IN A BARREL. WEIGHT ABOUT 100 LBS.

SHADES.



No. 696E—Deep cone, 8 in. diam., 5 in. deep, for 2¼ in. holder, - - - - - - - per dozen $10.50
No. 697E—Deep cone, 10 in. diam., 5½ in. deep, for 2¼ in. holder, - - - - - - per dozen 12.00

X-Ray shades and reflectors are finest crystal glass, plated with pure sterling silver by a new process which gives the reflecting surface great brilliancy. This plating is protected by green enamel, making the shade neat and attractive besides very useful.

NO. 696E, 2 DOZEN NO. 697E, 1½ DOZEN IN A BARREL.

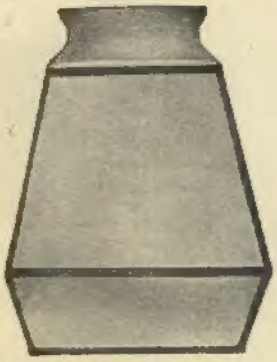
No. 6197E—X-Ray, diam. 6¼ in., depth 2¼ in., for 2¼ in. holder, - - - - - - per dozen $9.00

For ornamental purposes such as side lights for show windows, fancy fixtures: chandeliers, clusters and pendants.

FIVE DOZEN IN A BARREL.

ELECTRIC SHADES.

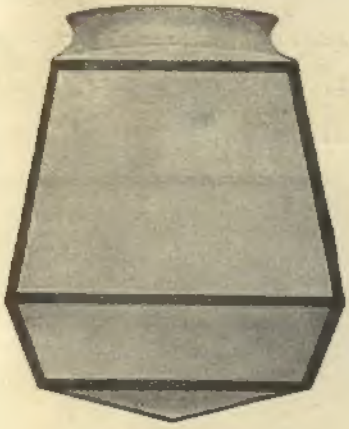
BLACK LEADED, COLONIAL AND MISSION STYLES.



No. 2524E—Mission pattern, satin finish, diam. 4 in., height 5 in., for 2¼ in. holder, open bottom, - per dozen $15.00

No. 2526E—Mission pattern, sandblasted inside, diam. 4½ in., height 4½ in., for 2¼ in. holder, - - per dozen $9.00

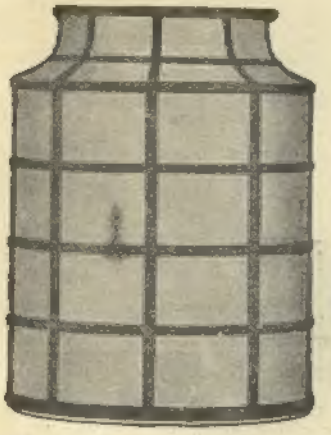
No. 2534E—Colonial pattern, satin finish, diam. 4½ in., height 4⅛ in., for 2¼ in. holder, - - - per dozen $9.00



No. 2525E—Mission pattern, satin finish, diam. 5 in., height 6 in., for 3¼ in. holder, closed bottom, - per dozen $16.00

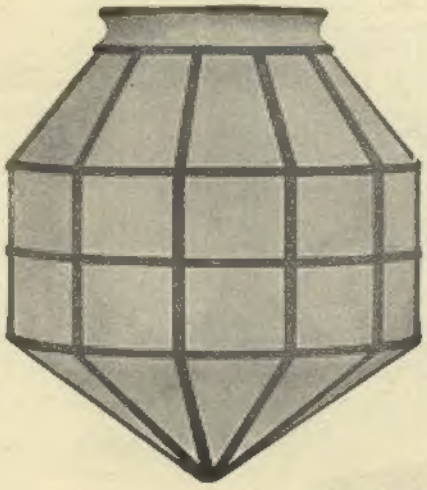
No. 2536E—Colonial pattern, sandblasted inside, diam. 4½ in., height 4½ in., for 2¼ in. holder, - - per dozen $11.00

No. 2532E—Colonial pattern, sandblasted inside, diam. 5 in., height 4¼ in., for 2¼ in. holder, - - per dozen $13.00



No. 2528E—Colonial pattern, sandblasted inside, diam. 3½ in., height 4 in., for 2¼ in. holder, - - per dozen $ 9.00

No. 2530E—Colonial pattern, sandblasted inside, diam. 4½ in., height 5¾ in., for 3¼ in. holder, - per dozen 16.00



No. 2540E—Colonial pattern, sandblasted inside, diam. 6½ in., height 6¾ in., for 3¼ in. holder, - - per dozen $20.00

No. 2538E—Colonial pattern, satin finish, diam. 6 in., height 6½ in., for 3¼ in. holder, - - - - per dozen $25.00

These shades are opal tint, smooth on the outside and either smooth or sandblasted on the inside. The leaded lines are dead black. Especially adapted for dens, halls and fancy lighting.

Revolvers.

SMITH & WESSON.

S. & W. HAMMER.

Automatic Shell Ejector, Double Action. Shoots S. & W. Center Fire Cartridges.

Nickel Plated.

	Each
No. 132—32 Caliber, C. F., 3½ in. Barrel, 5 Shots, Rubber Stock	$15.00
No. 138—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots, Rubber Stock	16.00

Blued.

	Each
No. 132B—32 Caliber, C. F., 3½ in. Barrel, 5 Shots, Rubber Stock	$15.00
No. 138B—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots, Rubber Stock	16.00

S. & W. NEW DEPARTURE HAMMERLESS.

Automatic Shell Ejector, Double Action. Shoots S. & W. Center Fire Cartridges.

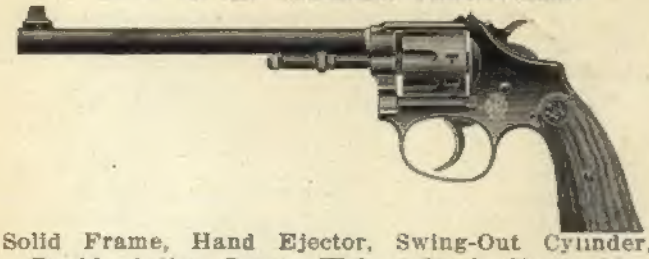
Nickel Plated.

	Each
No. 142—32 Caliber, C. F., 3½ in. Barrel, 5 Shots, Rubber Stock	$16.00
No. 148—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots, Rubber Stock	17.00

Blued.

	Each
No. 142B—32 Caliber, C. F., 3½ in. Barrel, 5 Shots, Rubber Stock	$16.00
No. 148B—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots, Rubber Stock	17.00

S. & W. 22 CALIBER PERFECTED.



Solid Frame, Hand Ejector, Swing-Out Cylinder, Double Action, Square Walnut Stock, Shoots 22 Caliber S. & W. Long R. F. Cartridges.

Blued.

	Each
No. 122B—22 Caliber, Rim Fire, 3½ in. Barrel, 6 Shots, Solid Sight	$12.00
No. 122½B—22 Caliber, Rim Fire, 6 in. Barrel, 6 Shots, Target Sight	13.50

S. & W. MODEL 1905, HAMMER.

Solid Frame, Hand Ejector, Swing-Out Cylinder, Double Action, Large Checkered Square Walnut Stock.

Blued, 6 Shots.

	Each
No. 162B—32 Cal., C. F., 5 in. Barrel	$20.00
No. 162½B—32 Cal., C. F., 6½ in. Barrel	20.00
No. 168B—38 Cal., C. F., 4 in. Barrel	20.00
No. 168½B—38 Cal., C. F., 5 in. Barrel	20.00
No. 168¾B—38 Cal., C. F., 6½ in. Barrel	20.00

S. & W. MILITARY, MODEL 1908, HAMMER.

Solid Frame, Hand Ejector, Swing-Out Cylinder, Double Action, Large Square Checkered Walnut Stock, Shoots 44 S. & W. Special and 44 Russian C. F. Cartridges.

Blued.

	Each
No. 144B—44 Caliber, C. F., 6½ in. Barrel, 6 Shots	$25.00

HEAVY FRAME TARGET, MODEL 1911.

Solid Frame, Swing-Out Cylinder, Loose Firing Pin, Double Action, Large Checkered Wood Stock.

	Each
No. 121B—22 Long Rifle Caliber, 6 in. Barrel, 6 Shots	$25.00

Revolvers.

HARRINGTON & RICHARDSON ARMS CO.'S.

H. & R. AUTOMATIC, HAMMER.

Automatic Shell Ejector, Double Action, Rubber Stock.

Nickel Plated.

		Each
No. 242	—32 Caliber, C. F., 3¼ in. Barrel, 6 Shots:	$5.50
No. 242½	—32 Caliber, C. F., 4 in. Barrel, 6 Shots.	6.00
No. 248	—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots.	5.50
No. 248½	—38 Caliber, C. F., 4 in. Barrel, 5 Shots.	6.00

Blued.

		Each
No. 242B	—32 Caliber, C. F., 3¼ in. Barrel, 6 Shots.	$6.00
No. 248B	—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots.	6.00

H. & R. HAMMERLESS.

Automatic Shell Ejector, Double Action, Rubber Stock.

Nickel Plated.

		Each
No. 740	—22 Caliber, Rim Fire, 3 in. Barrel, 7 Shots	$6.50
No. 742	—32 Caliber, C. F., 3 in. Barrel, 5 Shots.	6.50
No. 748	—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots.	6.50

Blued.

		Each
No. 740B	—22 Caliber, Rim Fire, 3 in. Barrel, 7 Shots	$7.00
No. 742B	—32 Caliber, C. F., 3 in. Barrel, 5 Shots.	7.00
No. 748B	—38 Caliber, C. F., 3¼ in. Barrel, 5 Shots.	7.00

H. & R. AUTOMATIC, HAMMER, WITH TARGET GRIP.

Automatic Shell Ejector, Double Action, Rubber Stock, Nickel Plated.

		Each
No. 242½G	—32 Caliber, Center Fire, 4 in. Barrel, 6 Shots	$6.50
No. 248½G	—38 Caliber, Center Fire, 4 in. Barrel, 5 Shots	6.50